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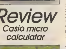
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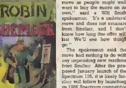
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Vol 4 No 50

THIS WEEK



Review
Casio micro calculator



Spectrum to break £100 as 128 looms in January

AS THE launch date of Sinclair's Spectrum 128 machine approaches – now believed to be planned for either January 30 or 31 – its predecessor, the Spectrum Plus, is available for the first time for under £100

WH Smith has just cut the price of the Plus down to £99 95 WH Smith's price applies to the Spectrum Plus itself, rather than the package containing software joystick and interface which the store is continuing to sell at £139 95

"We felt this was a good move as people might well want to buy the micro on its own," said a WH Smith spokesman. "It's a unilateral move and does not emanate from Sinclair, and I don't know how long this offer will last We'll see how things go"

The spokesman said the move had nothing to do with any impending new machine from Sinclair After the proposed January launch of the Spectrum 128, it is likely Sinclair will follow by launching its 128K Spectrum compatible portable in April and the 3½ inch disc-based version of the QL in May

The portable will apparently include a built-in green screen and microdrive

The new QL will be similar to the present model except the four Psion software packages are likely to be in Rom and the Digital Research Gem operating system is likely to be offered as an option for the machine

INSIDE Beginner's guide to accessing Britain's bulletin boards

Amiga's UK delivery dates – p4

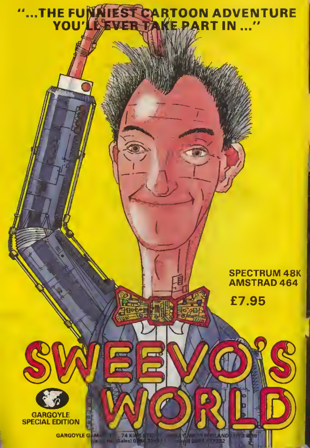
Amiga's UK delivery dates – p4

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Vol 4 No 50

DK'Tronics Amstrad 464 and 664 expansion boards

EDITORIAL

All but one of the major micro companies is fielding a new micro this Christmas And Sinclair the odd one out, looks set to come into line at the end of January

The interesting thing is that all the companies have adopted the same approach for 1986 All have 128K versions of their present top sellers – the Amstrad 6128, BBC 128, Commodore 128 and Spectrum 128 In fact it is the first time that all the top companies are selling models with the same memory capacity

Unlike the QL none of these are "true" 128K machines They all use bank-switching techniques and use the extra 64K in (usually 16K) chunks to store data, called up by the core program running in the other 64K.

So what will 128K mean for software in 1986? Quite simply programs will look good Most of the additional 64K will be used by software houses for storing graphics information, and in the case of the C128 also music notation Take a program like *Way of the Exploding Fist* for example The complexity of the core program – the animation and logic of the fighting figures would have to remain largely the same But the backgrounds could be greatly enhanced, both in quality and number

It is very likely that programs will be written to run automatically on both the 64K and 128K machines The program itself will check which machine it is running on and on the 128K version the only difference is likely to be the number of screens available in an arcade game an increased number of illustrations in an adventure or an increased maximum document size for a word processor

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Computer Trade Association Magazine of the Year

Amiga planned for June in UK

MORE DETAILS are emerging of the availability of the Amiga micro in this country. Commodore plans to have machines in the shops next June, although NTSC (the American TV standard) machines will be here from March, and PAL (the British standard) prototypes in May.

The Amiga gets its first public display at January's Which Computer? show for business micro users (see *Popular Computing Weekly*, November 28).

The company has also announced that the Amiga will not be sold through high street stores but through specialist dealers only. Commodore feels that the technology of the machine will be better understood and supported by the specialist centres.

Two software packages are to be bundled with the Amiga – *Kickstart*, which includes AmigaDos the operating system written by Bristol firm Metacomco, and *Extras*, a disc containing a tutorial program, Microsoft's ABasiC and demonstration programs.

Commodore will market three more entry-level titles under its own name in the UK – *Textcraft*, *Graphicraft* and *Musicraft*. All other software titles will be written and published by third-party companies. Commodore claims that already around 80 British software companies have Amiga development systems to work on. About 100 British firms attended a recent two-day software developers' conference held by Commodore last week.

Commodore is also pressing ahead with plans to launch a second up-market Amiga model – the Amiga 2 – before the end of 1988. It will be fully software compatible with the present Amiga machine.

Apricot drops F1 and F1e

APRICOT has announced it is to cease manufacture of its low end F1 and F1e machines, and also its portable business micro.

These machines, with 256K and a built-in disc drive, were intended to give Apricot software compatibility for under £1000. The F1e was particularly targetted at schools and colleges at £685.

Instead the company is to continue with an enhanced version of the F1 with 512K Ram and a Gem interface at £999.

"We still have some stocks of the F1 and F1e, which will sell into 1986, but we're not manufacturing any more," said John Leftwich, Apricot's group marketing director.

"We felt that end of the market has become very competitive with ferocious pricing. We have made very little money with these products – the dealer margins were insufficient, and we were getting inadequately supported users as a result."

While he agreed that the decision reflected a shift in product profile to Apricot's top-end professional machines, John Leftwich said the dropping of the F1e did not signify any pull out from the educational market.

"We are still very much in higher education and have agreements with 35 universities and education authorities. But we felt that these bodies were just as interested in our Xi series and the F2 and F10 micros."

New deal on Commodore 128

COMMODORE has announced new deal on the Commodore 128 machine.

Buyers of the C128 can trade in their old Commodore 64 when they buy the 128, and get £50 off the new machine.

For those without a C64 to trade in Commodore has decided to bundle the 1530 C64 cassette recorder free with the C128.

The offer runs until January 31st, 1986, and is available, according to Commodore, from all major retail stores and many independent dealers.

"The offer is designed to appeal firstly to Commodore 64 owners who want to upgrade to a more powerful machine," said Commodore UK's marketing manager Chris Baday.

The company also hopes to attract users of other micros. The free data recorders immediately gives the C128 running in C64 Mode access to the vast majority of Commodore 64 programs.

On the cards from Electric

CREDIT CARD software is now available for the first time in the UK from Electric Software.

The company has signed a distribution deal with NDSL to supply Astron Softcards for nine of its MSX titles, including *The Wreck* and *Shark Hunter*.

The software is carried on a Rom cartridge the same size and shape as a credit card.

Electric Software also markets an adaptor to fit on the MSX machine to slot the card into.

The company's marketing manager, Mike Hall, claims, "The industry has for years been totally reliant on the audio cassette for data storage. Mechanically unreliable and the target for mass piracy, it needs replacing."

The MSX adaptor costs £7.95. Prices for the cards range from £14.95 to £19.95 for *The Wreck*.

MSDOS board for 6128

IBM PC compatibility for the Amstrad 6128 will be possible by April with the launch of an 16-bit processor MSDOS add-on board for the machine from Screen Micro.

The board will be launched around the same time that Amstrad plans to announce its own PC compatible business system (see *Popular Computing Weekly*, December 5).

"The MSDOS board will run in conjunction with our own memory expansion board, which will also be launched early next year," said Nigel Sinclair of Screen Micro. "It will mean that anyone with an IBM in the office can run programs on their Amstrad at home.

"So far, all the software we've tested run perfectly on the board with the exception of *Flight Simulator*. But it will run *Lotus 1-2-3*, *Dbase II*, and *Symphony*."

The MSDOS board, memory expansion board and 6128 combination will compete with Amstrad's own PC compatible. Screen Micro hopes to be able to price the MSDOS processor board at around £299. Its expansion board (which also runs on the CPC 464 and 664) will be offered in configurations of 64K from 64K up to 512K and includes a resident machine code monitor, a 32K printer buffer, and an extra 22 Basic sub-set instructions. Prices for the expansion range from £99 (64K expansion) up to £159.95 (512K).

The company also plans a hard disc and controller for the 6128, and a disc drive for £399.

Further details from Screen Micro, 6 Main Avenue, Moor Park, Northwood, Middx (09274 20681).

Tandy cut

TANDY has cut the cost of its 'Co-Co' colour computer for Christmas.

The 16K standard Basic version is now available for £49.95, the 16K extended Basic version for £69.95, and the 64K extended Basic version at £129.95.

Xmas ZX Fair

NEW SOFTWARE for the Sinclair QL will be among the attractions at the ZX Christmas Microfair, being held at London's Horticultural Hall, near Victoria Station, this weekend.

Three new QL titles will be launched by Sinclair: *QL Pawn*, the adventure – already previewed – featuring a sophisticated parser, *QL Fictionary*, a program containing two word games, one a *Call My Bluff*-style game, and *Word Hords*, a series of anagram puzzles and GST's QL Macro Assembler.

The Christmas Microfair is open from 10.00am to 8.00pm, entry is £1.75 for adults, and £1.25 for children.

Venture aid

ADVENTURE game writers' aids continue to appear – the latest is Sigma's *Adventure Description Language (ADL)*.

ADL, however, is a book rather than a generating program, which aims to explain how to write large adventures on small micros. The book defines ADL itself and shows readers how to write a compiler, and an interpreter for their adventures.

It should be out this month, priced at £8.95. Further details from Bernice Preddy at John Wiley and Sons, Baffins Lane, Chichester, Sussex (0243 784531).

Adventure Description Language
A new way to generate adventure games

Enterprise mail order price drop

ENTERPRISE has lined up a special Christmas deal on its Enterprise 128 computer, in conjunction with Merseyside mail order firm Macintyre Marketing.

The machine is now on sale mail order with Fidelity TV/monitor and some software in one package at £229.

An alternative pack includes the 128, data recorder, joystick and software at £119.95.

The intention is to compete head on with Amstrad, whose 6128 comes complete with colour monitor and disc drive at £399. Adding a disc drive to the Enterprise 'bundle' would put the price up to around £450, but the Amstrad monitor cannot be used as a TV.

Technical details can be obtained from Enterprise on. Sales enquiries to Macintyre Marketing on 01-739 4282, 051 708 8202 or 01-936 8330.

Downhill racer

ELECTRIC Dreams has released *Winter Sports*, for the Spectrum, thus beating US Gold and *Winter Games* to the first winter sports simulation on the Spectrum.

The program includes ice hockey, speed skating, ski jumping, downhill skiing, slalom, giant slalom, bob sled and the biathlon.

Winter Sports costs £8.95.

Daddy hitch

MELBOURNE House has delayed its follow up to *Way of the Exploding Fist*, *Big Daddy's Rock 'n' Wrestle* until after Christmas.

Rock 'n' Wrestle has been written by the team which wrote *Fist*, and uses the same graphic style for a wrestling simulation.

"It will now come out on January 7," said the company's Paula Byrne. "We didn't fancy squeezing it on to the Christmas shelves along with everything else."

File eraser

Issue No 48 contained an interesting routine from Mr R Abrahams concerning the ability to erase a file from within the *Tasword* program itself I found the program very useful as it is pedestrian to have to break into Basic every time a file must be deleted

However while typing the program into my Spectrum I discovered a number of what I am sure are "typos" together with a line which unless altered will not allow the program to run. I have listed these below, line by line, so that your readers can benefit from this routine.

Line 22 (a) Colon should be a semi-colon (b) Insert 16 spaces between the words 'File' and "e" so that it is printed correctly on screen Line 180 The program will not execute correctly if left unchanged. Alter IF i > = 0 Line 8000 Insert a semi-colon between "Erased" and FLASH 0 Line 8010 Should read 8010 not 8010 Line 8020 (a) Insert a colon between INPUT a$ and IF a$ = (b) Alter IF a$ = ""

M J Nancarrow
6 Meadway Park
Gerrards Cross
Bucks

Spectrum defence

Thank goodness for Geoffrey Wearmouth's support of the Spectrum (Letters 5-11 Dec 1985) Spectrum knocking seems to have become the great blood sport of the time, and it is good to read someone leaping to the defence of this endangered species For the Spectrum is indeed a good computer

When I 'upgraded' to a CPC 464 I expected my poor old Spectrum (a 16K, too) to be relegated to oblivion, or at least to the performing of secondary tasks Not a bit of it. Its string handling is in many ways superior to the Amstrad's *(A$(3)* for example is a good deal easier than *MID$(A$ 3 1)*, especially as the latter keyword needs to be typed letter by letter) Assigning values to the Amstrad's MID$ can sometimes be a problem, especially to a beginner

I do a great deal of applied mathematics, and for this the Spectrum leaves the CPC464 standing (Significantly most people seem to have forgotten that the verb 'to compute' used to be synonymous with 'to calculate.) The *Val* function on the Spectrum seems to be almost unique, it evaluates the whole string, and not just the value at the start of the string This enables equations to be *Input* during execution of a program – a facility which I have found to be very powerful

I have often read such phrases as 'that abominable (or atrocious, or terrible) single keyword entry" What is the fuss about? Just because most computers have a QWERTY keyboard, it doesn't mean that they are designed exclusively for the use of trained typists who may indeed find single keyword entry takes some getting used Most micro users are not trained typists and thus can be expected to find it easier to press one key rather than five, as in *Print* (Six actually, since the Spectrum adds its own space after the keyword.)

I purchased my CPC 464 with Tasword and a Brother M1009 so it is used for word processing almost exclusively (I am the Hon Sec of a society and edit 16 publications a year Word processing is thus a major task for me) When I want to compute, however, (sorry, I mean 'calculate') I reach for my beloved old Spectrum.

R J Peters
3 Fitzherbert St
Warsop
Mansfield
Notts

Useless box

If you are having trouble with the Currah Microspeech and Wafadrive, try this. *Poke 23734,0*

This initialises the Wafadrive and makes it behave that it is a useless plastic box At the end of your program use *Poke 23734 167* and the Wafadrive is one again activated Some strange effects may be noted during the use of *CAT**, but your program will function properly

I also discovered that the Cambridge joystick would not work behind the Wafadrive, but that it fine between the Spectrum and Wafadrive

Paul Gera
Cheltenham

New toys

I would like to comment on some of the Ziggurat articles even if I am a mere tyro at the computer game

One of the most interesting articles to me related to the change from eight to 16 bit micro design. Regardless of the benefits, it might just come as a shock to Mr Sinclair or Mr Tramiel that just because they happen to design an all-singing, all-dancing 16 bit doo-hickey, the market for such purely on price has to be more limited, and the development costs can never be really recouped

The increase in Ram per chip is another area where there will undoubtedly be a revolution When? If the development of the QL or the latest Commodore machines are to be the yardstick by which such development is to be measured then I will stick to my lowly eight bit, 64K machine for quite a while yet.

Just where in the great scheme of things do all of these new toys fit? We have to ask ourselves just where is the market for the new machines, because as a home micro user I cannot see myself being able to spend the kind of money involved.

I would say that these new developments have either a wrong marketing target or worst of all no target at all If the home buyer doesn't like the price and the small business user doesn't like the facilities offered than you are indeed sunk

Don't misunderstand me, I think the revolution in technology is very exciting, however, I don't think that it will all happen tomorrow or the next day for that matter

Dave Race
Droitwich Spa
Worcestershire

No research?

I read with interest your article titled *Hardware Spectacular* (issue 21-27 November) and wish to comment on the apparent lack of research

Although it is true that MSX is a standard (and therefore all software/peripherals are intercompatible) and most machines have high quality keys, etc, to say that the software is generally of poor quality is ridiculous To go on to say that machines are 'supported by few companies' and 'most software comes from Japan' proves my point that little research was done. *MSX Computing* has reviewed over 300 titles to date (mostly UK titles) and has no fear of the glut of MSX software coming to an end There are over 400 different MSX games currently available, the small majority from Japan are excellent and make most of the Amstrad offerings look very poor

You can now buy an MSX 64K computer for as little as £69, and that must be one of the best deals around.

Fortunately magazines such as yours, which misrepresent MSX, (although damaging sales at the moment) will do little damage to its long term success MSX will succeed despite the current bad press and will be around long after the likes of Sinclair, Acorn et al have gone!

Neil Alldritt
Advertising Manager
MSX Computing
Haymarket Publishing

I cannot agree as far as software is concerned. Programs for MSX are fewer in number and often of less originality than for either the Spectrum or C64.

That said, at £69 MSX looks more interesting than it did a few months ago at £300

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Spectrum 48K	£9.95 tape

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Tyneside specialist

Newcastle is not the first place you'd go looking for one of Britain's best known computer games whizz kids – nor, in these days of 14-year-old genius would you necessarily expect that whizz kid to be pushing 30

But Rob Hubbard is a man who s made a career out of the unexpected After all, nobody expects their Commodore's hard pressed 3-voice Sid chip suddenly to issue forth expensive-sounding, complex multi-part arrangements of real, original music either but if you've got *Zoids*, *Monty On The Run*, *Crazy Comets*, or any one of a growing number of a slightly-special Mastertronic games sitting on your shelf, then you've had a taste of what it can do in the hands of an expert

If, as has often been observed, the software industry is a re-run of the pop business, then Rob Hubbard must surely be its Phil Spector, a great original, extending the bounds of the possible, and masterminding hits for others (How many so-so games have benefited from reviewers passing comment 'another great soundtrack from Rob'?) The analogy goes further Rob Hubbard writes *just* the music for other people's games, making him the only 'name' music specialist in an industry increasingly dominated by anonymous programming teams

We're sitting in a decidely low-tech living room in his Newcastle flat *On* a desk in the corner stands a 64, disc drive, and (covered) printer A perfectly ordinary black and white portable TV serves for a monitor, whilst a bit further along sits a brand-new Amstrad 8256 Unplugged. Next to that, the only visible musical instrument, a virtually prehistoric Casio portable mini keyboard. Discs and music manuscript papers are everywhere

"I started playing music when I was seven," he begins, his native Yorkshire burr overlaid with a Geordie twang of nine years standing A relative latecomer to computing, Rob was, until four years ago, plying his trade as a professional musician, and turning the skills gained from three years of music college to a variety of jobs

"I've arranged for string quartets and pub-rock groups, worked as a musical copyist, and even pushed a knackered transit full of band gear through waist high snow at four o'clock on a January morning!"

Tyne Tees TV is currently filming a 'concept musical' he wrote a couple of years ago, *Work*, 'About life, society, and the whole bit, y'know?', but now computing affords the most satisfying – and lucrative – creative outlet Ironic really, since Rob bought his first machine simply to keep abreast of the impact computers were making in music He was considering the ill fated Memotech (How history would have changed if he d bought it) but when the price of the C64 dropped to the £230 mark, Rob, intrigued by its musical facilities, took the plunge

"I was completely self taught, starting off like everyone else with Basic graphics routines, but the great thing about the 64 is how it encourages you to get into machine coding I think I wrote my first code routine after about two months"

Early forays into educational programming having elicited little response Rob chanced upon the idea that was to change his life

"There were already specialist graphics programmers – why shouldn't there be specialist music programmers too? I went for it. I guess my breakthrough games were *Confuzion* and *Monty* Since then, I haven't had to look so hard for work." He laughs. In fact, his biggest problem these days is keeping up with the sheer volume of commissions What's the fastest so far?

"That'd be *Commando* for Elite They called me on the Wednesday evening dragged me down to Birmingham on the Thursday plonked me in a hotel room with all the gear at about 10 that morning – and I finished at about 8 the following morning I still haven't seen the version that's on sale!"

Usually Rob takes about two weeks to complete a 'soundtrack', but the earlier he becomes involved, the better he likes it – and the more 'integrated the results tend to be, as his work on another forthcoming Mastertronic games *Gerry The Germ* demonstrates Supplied with a 'cheat screens' version ("I'm useless at games"), Rob has come up with some truly disgusting sound effects (watch out for the Bladder and Bowel) and effective audio/visual links (ie, a stunning train sequence complete with whistle, and the clack of wheels over track) for this 'journey through the body game

He usually has about 4K of memory space to fit the music code in ' Sometimes as little as 3, never more than 6', and this leads to some hard decisions

Basically," he explains, "You have to take your pick – either a 'soundtrack' running all through the game, with a few effects thrown in at the right moment, like the motorbike in *Commando*, or sound effects for *everything* that happens, and no music It depends on the game in *Commando* there's so much happening on screen that if you had sound effects for all of them, there wouldn't be any point in having music Generally, I do both music and sound effects on a game, though people seem more interested in the music now

"I think the key for me as far as programming goes was understanding interrupts – 98 per cent of games work on Rasta interrupts I just make sure my music routines are run from them As time s going on, I've built up a set of routines which let me do everything a lot more efficiently . . For instance, I like Pitchband, and use it a lot – a routine I developed while working on *Monty On The Run* I also like things to sound rich not wimpy I think my experience of sync programming has been of help there I've got two Pulse width routines, a short one and a long one, and a vibrato routine – between them you can get some great sounds Ring Mod and Sync are the most versatile things to use on the Sid chip though – they are hard to use, because they take two of the voices, but are your best chance of getting distinctive sounds

"I once worked out that as long as you keep *something* going – the bassline, or percussion – you can 'steal' the other two voices for a quick effect or impressive

noise On *Commando* I've taken it to ridiculous extremes voice 1 carries the tune, with the second and third voices flitting all over the shop doing different things In comparison with someone like the American kid who did *Master Of The Lamps* for Activision, my routines are very efficient Although I admire his work, it's very wasteful of memory, at least, from what I could tell from his coding "

He laughs: ' You can break into any Turbo with a machine code monitor and a bit of patience . it's very educational!

Anyway the impression of so many voices playing at once is most helped by proper musical arranging as much as being a programming whiz."

Results are monitored over the 'typical punter system' used for all his work

"It's like a recording studio listening to the final cut over tiny monitors – if a track sounds good then, you know it will when people play it at home." The spartan approach extends to programming aids

"I've got a couple of Turbo loaders for the disc drive and Andrew Trott's Assembler Package but that's about it I was outpressed with the Orpheus *Electrosound* music utility – with that, someone who knows what they're doing should be able to put me in the dustbin – but the manual's about half an inch thick and it's not very user friendly I wouldn't write one myself, for the same reason I don't think I could make it friendly enough '

Does his own taste in music influence his writing?

"I make a point of listening to the Top 40 every week After all, most of these games sell to kids so what's the point of putting in an obscure classical piece? They need to hear something they can relate to One of my own favourite tunes, *Crazy Comets*, was a compromise between New Order, who I like, and a funk slap-bass sound it all depends Sometimes the tunes are totally original sometimes I adapt things, and make them my own *Monty* was like that – it started out as the theme from the old radio detective show, Dick Barton!"

Rob now feels that he has got the best he can out of the 64

"I'm probably going to carry on working with Mastertronic, they now pay me over five times what I started out getting! But I'm also keen to do other things I can push the Sid chip to its limits but I don't think there's much more soundwise I can get out of it Of course, as a programmer and a musician, I'm very keen to get my hands on an Amiga – built-in Midi, Fairlight compatible, 4-channel stereo (pannable I hope) – I've even heard that the sounds are produced digitally like the DX7 (Rob's got one and plays it in a local club band, whenever he gets the time) Obviously, I hope it sells – because if it does, there'll be a lot more work for me! Though I do wonder if it's the right machine at the right time

"I bought the Amstrad simply because there's so much work around for it Frankly, though, it's like going from a Rolls to a Morris Minor The monitor leads are too short, the speaker's pathetic and the sound chip' OK, the graphics are good, and the disc drive is unbelievably fast against the Commodore – though not as reliable I've lost stuff on it already, and that's never happened on the 1541, despite a lot of hard use But as a programmer I find the Amstrad unfathomable Maybe I'm impatient, coming from a machine I know inside out, and immediately wanting to jump in the deep end. I'm transcribing some of my Commodore work for other people to code, but I think it'll be a long while before I do anything commercial myself on it "

Rob smiles

" Do you know what I'd really like to do? If had the choice now – I'd be playing in a straight-down-the-line, honest-to God blues band!"

Fortunately for music lovers everywhere, the man who made the 64 sing looks like staying with keyboards of the Qwerty variety for a little while longer

Tony Reed

A beginner's guide to treading the bulletin boards

To most micro enthusiasts, networking is probably the most confusing and least understood area of home computing

Most people think of networking as services like Prestel and Micronet 800 While these 'professional' services are interesting enough there are also now several hundred 'bulletin boards' around the country with which you can talk.

Most are set up and run by fellow computer enthusiasts and finding your way around the 'boards' is tremendously exciting

To access a bulletin board you will need a computer, preferably colour (the BBC is ideal because of it's teletext mode – this is the mode which many boards run on), and a modem with a communication speed of either 300/300 baud or 1200/75 baud or ideally both (a second-hand one should be about £50) You will also need a phone extension in your computer room and have to be prepared to see a sharp increase in your phone bills.

Bulletin boards offer a number of services, some of which may include technical help, sales and wants, telesoftware, lists of other bulletin boards and what's new in the computing and modem world The fun in 'walking the boards' is finding out what each one offers and talking to new people Every bulletin board is different so 'phone around to find the ones you like most

My favourite is 'The Micrognome' which is running on 1200/75 and can be contacted on 01-888 8894

Any home computer should be suitable although if – like the Spectrum – it doesn't have a serial interface, such as an RS232, you will have to make or buy one for between £30 and £40 depending on the micro On the Spectrum the most popular modems are designed to plug directly into the user port

The modem is probably the most unfamiliar part for the newcomer Modem stands for modulator demodulator. It takes an instruction or some data and converts it from a line of text on a screen to noises similar to those made by a computer program on a tape, only at a different tone This alteration of tone is necessary to help prevent loss of corruption of data as it travels down the phone line The receiving modem at the other end then converts the noises it receives to the correct data or set of instructions

When you buy a modem it will have transmission/receiving speed of either 1200/1200, 1200/75 or 300/300 or a combination of these written on the box or in the accompanying blurb.

300/300 baud was the first speed used on a large scale and it is still very popular, especially in the USA. Many boards in this country are 300/300 and it is still the most popular speed but 1200/75 is quickly catching up in popularity About 59% of the bulletin boards in this country are 300/300, 30% are 1200/75 and 10% are both 1200/75 and 300/300. The other 1% are run at wierd speeds such as 600/600,1200/1200 and 2400/2400

Many modems which run at 1200/75 also run at 1200/1200, this is because the two speeds are easy to mix on one modem at a low cost. Speeds like 1200/1200 tend to be used for user-to-user communications rather than for connection to a bulletin board

There is one more thing I should mention. This is full- or half-duplex Full-duplex allows communication in both directions at once while half-duplex allows communication in only one direction at a time An example of full duplex is when you are talking on the phone you can hear the other person at the same time as you are talking to them A walkie-talkie is an example of half-duplex, if you wish to talk to the other person then you cannot hear them while you are doing it.

Please be polite when on a bulletin board as it is more than likely being run by a person just like yourself If people are rude they may decide to close down and this would spoil it for them and others

Most bulletin boards are colour and use a 40-column display but some 300/300 boards use an 80-column screen

How good your modem is really depends on the quality of the communications software With most popular modems the software is contained in Rom, in other words it doesn't have to be loaded from a tape or from a disc The software may be a cartridge, a sideways Rom or it may be built into the modem The BBC and Amstrad computers both have sideways Rom sockets so the software is likely to be on a sideways Rom On a BBC to plug a Rom in you have to first take the top off of your computer, next you must unscrew the keyboard You will then see on the right-hand side a number of Rom sockets and typing in the correct command, having put the top back on the computer, will cause the software held in the Rom to be executed and work as if it had just been *Chained* from a tape If you don t feel happy about this then your local dealer will do it for you The VTX 5000 modem for the Spectrum is an example of a modem with its software built-in

If you have a modem but no software and you don't feel that you are an expect at programming then I would advise purchasing some rather than writing your own.

The procedure now will vary from modem to modem and from software to software

How do you log on? If your modem has an auto dial facility then you will not have to even touch the phone, it will all be automatic If you have a non-autodial modem then follow the procedure below which shows how to log on or dial up a bulletin board.

If you have a VTX 5000 then this is the correct procedure for you to use

Before dialing always check that the bulletin board is operating at that time of day

Also check that it runs at the correct speed for your modem – if it doesn't then the board will not work with you and your modem so look down the list of boards for one that does run at a speed compatible with your modem

The logging on procedure is as follows

1) Turning on the computer, with the modem plugged in.
2) Work your way through the software until a message similar to 'Phone computer' is displayed on your screen
3) Pick up the receiver
4) Dial the number of the bulletin board, eg, 01-888 8894 (The Micrognome)
5) If the number is engaged hang up and either try again in a few minutes or try a different board Very early morning two – five am is often the best time as most people are asleep and don't bother trying to log on at that time
6) If a person answers the phone it is likely that you dialed a wrong number If so apologise and hang up
7) When you hear the carrier tone (a low pitched hum or whistle) go on line To do this you will either have to switch a switch or press a button marked on-line
8) Replace the receiver
9) Follow the on screen instructions

Having logged on the bulletin board is likely to display a title page

Bulletin Board Survey

Type in your name and for some boards a password or your phone number. Next you will get a menu giving you the basic options. Below is the menu for the Micrognome.

Press the number corresponding to the option that you require. On the Micrognome for example one of my favourite options is the Babble Board Option No 9. The Babble Board is a series

```
The Gnome at Home        HALLOa
Hello There!             Please enter
David Wallin         $+  YOUR NAME here!
                         3+ chars please
This screen is       $+  And anything else
                         $$ to clear noise
for PCW              $+  you can fit in

Please enter your name or pseudonym
as you log on, it's good to know who
calls and when you send us a message
we'll all know where it came from

MicroGnome   Home of the Gnome
```

of pages which logger-oners can leave messages to all other modem users. These can be anything from adverts for pirate radio stations or other bulletin boards to recipes for stewed Spectrums to lots of jokes. A similar feature to a babble board (not offered on the Micrognome) is electronic mail. This is similar to a babble board except only the person for who the message is intended can read it.

The opposite to logging on is logging

```
The Gnome at Home        Oa
MicroGnome   Home of the Gnome

          1 Latest Gnews
          2 Communicade
          3 Gnomemania
          4 Gnome Diary
          5 Underware
          6 Goblin Party
          7 Write to Gnomes
          8 Goblination
          9 Babble Board
          0 Our Address
Oa
Help Gnome Readers : please key 8
131 Have fun! Please leave by 16 45
```

off. Surprise, surprise! Different boards have different commands for logging off but it is likely to be one of the following commands, *90, *91, *900, *901, *BYE, *bye, *log off or *01.

The one to use will depend on the software that the bulletin board itself uses. When you type the correct one (*90 on Micrognome) a farewell message is displayed.

Never just hang up on a bulletin board as it can't tell that you have and will assume that you are still on-line to it. If this happens the board will be engaged for other users.

And that's all you have to do to get on to the boards. Just don't go and break into the bank of England central computer without telling me how to do it. Anyway the bulletin board list below includes as many boards as I know. Read the list, phone them up and have fun.

David Wallin

1200/75 boards

Name	Area	Number	Time	Comments
ITeC	Basildon	0268 22177	24 hours	Also 300/300
ITeC	Brixton	01 735 6153	Mon – Fri 1400-1300	
ITeC	Aberdeen	0224 842580	24 hours	
ITeC	Cardiff	0222 464725	24 hours	
ITeC	Deeside	0244 821231	Hours Unknown	
ITeC	Stoke	0782 265078	24 hours	
ITeC	Dundee	0382 25800	Hours unknown	
ITeC	Isle of White	0983 528561	Hours unknown	
ITeC	Scunthorpe	0724 580403	Hours unknown	
ITeC	Telford	0952 677400	24 hours	
ITeC	Brighton	0273 600854	Mon – Fri 1400-1700	
ITeC		Gloucester	0831 63415	Mon – Thur
			1400-1200 : Weekends	
ITeC	Bradford	0274 725895	Hours unknown	
ITeC	Hastings	0424 445779	Mon, Wed & Fri 1400-1700	
ITeC	Sunburn	0623 445772	Hours unknown	
WITeC		0098 677400	Mon – Fri 1400-1800	
ITCU Exchange & Mart	London	01 000 4742	24 hours	Connected to ITeC's
Communitel ITeC news	London	01 000 0323	24 hours	Connected to ITeC's
Communitel ITeC news	London	01 950 2000	24 hours	Connected to ITeC's
CABB	London	01 631 3076	24 hours	Also 300/300
RSCB		0207 52477	24 hours	
CBBS	Exeter	0392 53116	24 hours	Also 300/300
Inter Co. Comparisons	London	01 253 0700	24 hours	
OBBS	Morecambe	0524 426132	24 hours	Also 300/300
Micrognome	London	01 888 6301	24 hours	My favourite
Metrotel	London	01 941 4285	24 hours	
Technomatics	London	01 450 9764	24 hours	
Microtest		0280 77677	24 hours	
MBBS	Essex	0277 723867	24 hours	Also 300/300
NBBS	London	01 844 0010	Mon – Fri 2100-0800 Weekends	
MBBS	Herning	0002 630100	24 hours	Also 300/300
NOBBS		0208 78302	1400-1800	
			0244 54336	Hours unknown
FBBS	London	01 346 7100	1000 2000	
CB	Cambridge	0767 77703	2100-2300	
SBBS		0923 67544	2100 0800	
MBBS	London	01 83 5290	Mon – Fri 2100-0800 – Weekends	Also 300/300
GBBS	Marlow	0668 00081	Hours unknown	
MBBS	Aberdeen	0008 841000	Mon – Fri 2100-1000	Also 300/300
MBBS	Wallington	01 669 3263	Mon – Fri 2100-1800	Also 300/300
CABBS		0608 866800	Hours unknown	ring back
EB	London	01 455 8007	24 hours	Also 300/300
BelTex		0483 781334	Hours unknown	
BNOC		0012 734066	Hours unknown	
MOBBS	Manchester	061 736 8448	24 hours	Also 300/300
			0832 615899	1800-0800
Oxford	Oxford	0865 02704	Hours unknown	
Mortel	London	01 300 7150	Hours unknown	Also 300/300
Estelle	Harlow	0023 441100	24 hours?	Teleshopping – STC electronics
NI-MEP		0265 52346	Mon – Fri 1400-1200	
DISTEL London	01 079 9103	24 hours	Also 300/300	
BetFlash	London	01 901 4296	Hours Unknown	
Communitel demo I	London	01 000 7402	24 hours	Demonstration of Communitel bulletin hours software
Healthdata	London	01 580 6300	Hours unknown	Medical bias
Libertel	London	01 73 7730	Hours unknown	
Open University		0908 843000	Hours unknown	
OWLTEL	London	01 927 4306	Hours unknown	BBC biased
SWRFAX		0822 580440	Hours unknown	
NBBS	Cheshire	0938 77085	Hours unknown	Also 300/300
CBBS	Cumbria	088 08814	24 hours	Ring back Also 300/300
Acorn		0823 2343643	24 hours	Both of the two
Acorn (Education)		0823 863090	24 hours run by Acorn and give info on BBC micro products	Acorn boards are
Local information	Hackney London	01 300 3322	24 hours	Both of these boards are run by local councils and give information about local activities
Local information (C-View)	Rochford	0702 844373	24 hours	

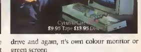
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This what they were saying about STRANGELOOP before they even saw this version

"Strangeloop is unique graphically impressive vast and devious In short brill" Personal Computing Weekly

" you've got to use your brain as well as your joystick Strangeloop graphics are superb a real Screen Star if … one Commodore User

"This is a very big and superior arcade adventure, an elegantly designed game" Your Commodore

Remember "SORCERY", this year's most ACCLAIMED title for the AMSTRAD? Well VIRGIN GAMES' unrivalled reputation for AMSTRAD software is upheld again with the Gang of Five's latest MASTERPIECE.

Weak jokes

Program *Three Weeks in Paradise* **Micro** Spectrum **Price** £9.95 **Supplier** Mikro-Gen, Unit 15, Western Centre, Bracknall, Berks

How fitting that Mikro-Gen, home of Wally, are based in Berks. The fat little fool made his fortune doing odd jobs and now, reunited with his son, has decided to take the family on holiday. No surprise then that with Wally at the helm they ended up on an island inhabited by the Can Nibbles tribe who immediately appropriated Herbert and Wilma for their next meal.

Fans of this series will already have an idea of what to expect as they move the desert island dumbo round the jungle and through a lot of unlikely locations in the search for solutions to his family's fate. It'll come as no surprise that the clubs are cryptic as ever and once, after much effort, you find the connection between objects you'll kick yourself for not seeing the visual pun before.

New to this game is the ability to pick up, drop and use objects in various places, which leads to added sublety in play. It's probably the most difficult Wally game yet. It's also the funniest.

There's still a certain amount to dodge though less than in the previous games, but the screens are full of amusing animation and poor Wally's loss of life routine is great fun.

I actually enjoyed this more than the previous games in the series. It marks a giant step forward for the morons of this world.

John Minson

Brave speech

Program *Speech ROM* **Micro** BBC **Price** £28.00 **Supplier** Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.

For most Beeb owners the upgrade to speech processing comes a long way down their list of add-on priorities. It may sound like fun but what does it actually do? But Acorn's speech system is rather off-putting to fit – a couple of chips (fine), more internal wires (okay) and the left of the keyboard cluttered up with sockets for plug-in cartridges (forget it).

Now, thanks to Computer Concepts, there is an easier, cheaper and more versatile option that leaves the BBC looking much as before and thankfully, you can fit it yourself in a matter of moments rather than having to have the Acorn system fitted by a dealer. The package couldn't be simpler: a chip and a manual.

However, you will also need the Texas Instruments TMS Speech Synthesis Processor chip – as used by the Acorn system. These are not hard to track down and Computer Concepts will supply you with one for an extra £10.

The TMS 5220 takes speech data from a serial Rom in the Acorn system – this gives good reproduction, fixed intonation and a limited vocabulary. The Speech Rom takes a different route: it drives the processor directly, allowing you to construct any English word with a wide range of intonation through stress and rhythm control. It can even sing!

The Rom takes two pages of memory unfortunately, but cunningly does not require this permanently. You must enable it before use with the command **Spon Return* followed by *Break*. Although the OS won't allow memory pages to be allocated except through a *Break*.

However, after initialisation it is reasonably easy to use – the command structure makes sense and practice soon pays dividends. Using **Utter*, you first need to decide on an intonation pattern – there's a choice of up to 24 tone patterns ranging from neutral through tentative to resignation and even grudging agreement. Great pleasure can be had changing the intonation of standard phrases.

The tone pattern and the rhythm of the word (marked by + in front of each vowel with a beat) together with word emphasis (* in front of the most prominent vowel of the emphasised word) produce a wide range of possible intonation patterns.

Once you have a pattern, the next step is obviously to work out the pronunciation. The Speech Rom gives you a choice of 54 individual sounds to generate the entire English dialect – 'computer' for example, would be spelt with eight separate sounds: K UH M P Y OO T UH. Although the comprehensive manual does slip some way into the science of linguistics, most of what is discussed is vital to an understanding of speech.

Dave Reeder

Maze

Program *Chimera* **Micro** Commodore 64 **Price** £3.95 **Supplier** Firebird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL

With a scream akin to one who is trained in the martial arts, the word *Chimera* comes tearing out of my TV speaker to herald the start of this new arcade puzzle from Firebird's Super Silver range.

The price may be budget but the game certainly isn't.

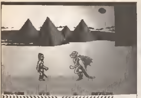
The first thing you notice apart from the speech is the great music complete with some excellent drum effects. The second thing you notice is that although the game is yet another in the *Alien 8* look-a-like contest, it's immensely playable and leaves you every time you get killed off with the feeling of "well, just one more go."

The plot is a familiar one, you are transported aboard a strange silent spaceship which while orbiting the earth has its weapon systems primed and targetted on us poor humans. The task is to find the obligatory self-destruct mechanism on the ship, initiate it and get out as quickly as possible. Fortunately, those caring aliens left heaps of food and water lying around to keep you going, so it's shut the airlock time and lets be on our way.

Graphically, it is very reminiscent of the now familiar *Alien 8* type maze. It's very nicely drawn, allowing you to wander around the ship until you find objects which make up other objects which will ultimately be of use in the final stages. Messages scroll across the screen giving out relevant information and help, along with your current food and drink supplies.

Great value and very entertaining.

Andy Moss



Headbangers

Program *Fighting Warrior* **Micro** Amstrad **Price** £7 95 **Supplier** Melbourne House, Castle Yard House, Castle Yard, Richmond, Surrey

Though *Fighting Warrior* suffers by comparison with *Way of Exploding Fist* (also by Melbourne House) the game has much to recommend it.

The animated fights have all the detail of *Fist* with the addition of some vicious club swinging and hand banging.

The Amstrad version has been deftly converted with the monitor graphics adding even more detail to the violence The plot remains the same, you look like some sort of Sanhedrin labourer and as you trudge across the desert landscape get embroiled in a series of fights with mythological creatures, many of which play dirty and try to club you with wings and tails – parts of the body you lack

There are other bits and bobs to the plot – scattered around are what look like vases, take a swipe at one and you get extra energy or a similar bonus

The actual fighting mechanism is not as complicated as *Fist* and the game is not as satisfying to play Nevertheless, some skill is required, it is very bloody and vicious and destined to be a success just like the Spectrum version

Graham Taylor

Program aid

Program *Master Tool Kit* **Micro** Spectrum **Price** £8 95 **Supplier** Oxford Computer Publishing

Master Tool Kit is a machine-code tool kit for Spectrum Basic programmers

The kit occupies 7 5K of Ram, leaving about 31K on the 48K Spctrum free which is enough for most programs (It also works on ye ol' 16K Spectrum but you would be very pushed for space)

It offers over 40 commands from the simple *free memory* command to some quite involved ones which would seem to do everything except write your program for you.

All the commands are well documented in a thin but compact handbook

There are many compressing and memory saving commands the usual purging down of Rem statements command, and some more sophisticated ones which concentrate program lines, and do some magical compression on the hidden binary forms of Sinclair Basic Also included are *Find* and *Substitute* commands which save a lot of drudging though endless programs

Debugging is well catered for, there is a *Trace* command and a command to display a table of all the variables and their values Even error trapping commands are provided, though unfortunately any error trapping will not work when the tool kit is removed

Most of the new commands are only one or two characters but just in case you find this too strenuous a user-defined function key feature has been provided A save-to-microdrive option is included which is very welcome, and another nice finishing touch, an on-screen clock.

I was impressed and would recommend it for the serious Spectrum user

Jon Prestidge

Your choice

Program *Seas of Blood* **Micro** Spectrum **Price** £9.95 **Supplier** Adventure International, 85 New Summer Street, Birmingham B19 3TE

Which came first, the adventure game or the Fighting Fantasy book? If you thought Steve Jackson and Ian Livingstone's highly successful range of multiple choice narratives were merely low tech computer adventures, think again, because now one of them has made it to the micro.

The plot for this one has you as a clot   sorry, pirate in the Sea of Blood, searching for 20 treasures to deposit on the top of a mountain, which is probably as good a place for them as any Being a seafarer you ll spend much of the time on your ship, the Banshee, using the command *Sail* followed by a directional, which, it took me an age to realise, cannot be abbreviated.

The format is standard Adventure International, which is to say three part screen the top part taken up by some pleasing illustrations What's new here is the combat system based on the book so closely that you even get a rolling dice graphic! On land you can run away to live another day, but at sea you stand and fight like a sailor Actually there's a chance to stop the dice at their optimum score if your finger's fast enough

The freedom of the ocean certainly gives this a slight role playing feel, but one thing I remember about these books is their lavish descriptions The micro reduces atmospheric prose to a few lines There are too many sudden deaths for my liking, which seems unfair when you can apply skill in combat and there's no memory *Save* I also found the vocabulary unfriendly at times

If you like Adventure International products you may like this, though the price seems rather steep, and the addition of Fighting Fantasy features is less than wholly successful. In this case I'd rather read the book.

John Minson

Toolbox

Program *Oddjob* **Micro** Any Amstrad CPC **Price** £9 95 **Supplier** Pride Utilities, 7 Chalton Heights, Chalton, Luton, Beds LU4 9UF

Pride's latest release is an extremely powerful and quite original disc users toolbox Some are invaluable tools and some are just curiosities but overall it is well worth the money

The program offers, amongst other things, a directory editor to restore files, hide files from the directory (as used in games like *Sorcery Plus*), set files to Read Only or vice versa etc The restore feature has already saved me from disaster

There is a very useful *FastFormat* program that not only whizzes along at twice normal speed but also lets you format in IBM mode (normally the CPCs can read/write IBM format files but cannot create or copy the discs)

Another original touch is a program that speeds disc access up by 20%, until the machine is completely reset. I was surprised by how noticeable the effect is on long files but it is really a bit of a luxury

There is a Discclone utility that will handle damaged or illegal disc sectors and a sector editor

Tony Kendle

Words worth

Program *Tasword 6128* **Micro** Amstrad 6128 **Price** £24 95 **Supplier** Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN

This is the very latest version of Tasman's word processor for home micros, and is certainly the most interesting

I started using Tasman's program some years ago, on the Spectrum Several dozen articles and a couple of books later, I have to admit to a sneaking fondness for it, even though a more streamlined disc-based American word processor has taken precedence in the last year or so

This then is the disc version of *Tasman* for the Amstrad 6128 As well as using the disc it sets up a Ram disc for handling files while moving between the text and the main menu.

Much has been written of the various examples of this program so I won't go into all the tiniest details of text handling possible with this utility Requirements such as block moving and erasing, search and replace, tab and margin commands, headers and footers, word-wrap and paragraph justification, and very quick file-handling are all supported, as well as a unique on screen notepad facility Compared with more expensive systems, some of the commands are ultimately lacking and it is a little slow but, balancing this is the extensive and well-written manual, the comprehensive printer tutorial and very useful customising procedures which enables the user to redefine much of the operating environment.

Professional users may want to use something a little more powerful, like Arnor's Rom-based *Protext* (£40-plus), *Pocket Wordstar* (£120) and Newstar's fabulous *NewWord* (about £70, I believe), all out-performing *Tasword* in certain departments, and Amstrad's own PCW 8625 word processing system, which is an almost irresistible alternative

But for the home user who just wants to produce neat letters, and the small businessperson or club secretary who wants to use the powerful mail-merge facility in conjunction with Campbell System's *Masterfile*, then *Tasword 6128* is a very worthwhile program

The only doubt I have is about the program's robustness – the Spectrum version was always a little nervous when getting full (about 300 meagre lines in that case) and this present version appears occasionally to lose the first few characters of a file when being saved While text appeared to be otherwise safe (the last thing a writer wants is several thousand words disappearing up his computer's Ram) nevertheless, full files (65,000-odd characters on the 6128) did cause the program to lock up requiring the user to erase a few words in order to regain control.

At the price, though and with the companion *TasSpell*, Amstrad owners are lucky indeed to have such a sophisticated word processor to use

Tony Bridge

Head to come

Program *Fat Man Sam* **Micro** BBC **Price** £3 95 **Supplier** Firebird, Wellington House, St Martin's Lane, London

Oh no, this has got to be the worst platform game I've seen on the BBC Not only is it a Miner Willy copy even down to the little dancing men doing a sad version of the Conga, but the instructions are awful and also incomplete The box inlay states keyboard only - I played it using a joystick and it worked perfectly well You can select any screen from the first ten to start from – this is not mentioned in the instructions and the platforms in the game are so difficult it's almost impossible to play OK I accept that if games are easily completed they prove no challenge, but *Fat Man Sam* is just the opposite – it's too difficult and fussy! I cannot understand why Firebird have released this under their Super Silver range because apart from being two years out of date it's not up to the standard of their other releases

True, there are 40 screens to play though and the graphics are quite pretty but it's boring in the extreme and there's really no music to speak of Practically everything on screen is deadly apart from the objects that have to be picked up and unless you are a platform expert you won't get past screen one

Sorry, Firebird this is a very poor release and even if it was priced at £1 99 it would not be value for money

Andy Moss

Tally Ho

Program *Their Finest Hour* **Micro** Spectrum 48K **Price** £0 00 **Supplier** Century, 12-13 Greek St London W1V 5LE

It was midnight when Winston summoned me to his bunker The hun had swarmed over the channel in huge formations of planes to blast airfields, bomb ports and wipe out radar installation.

"The cabinet," Winston growled, "has decided to ask for your resignation . cataclysmic losses war in the air lost ..."

Winston's bombshell at the end of several hours struggling to stem the Luftwaffe tide was one of the most emotionally upsetting experiences I have had in computer gaming In part, no doubt it's due to the power of that familiar face staring out of the screen but it's also a result of the cleverness of that old fox Nicky Palmer and the absorbing nature of the game he and John Wilson have designed.

It's an excellent adaptation of the Battle of Britain in which the player controls the RAF and attempts to protect Britain from German bombs while shooting down as many German bombers as possible and losing as few Hurricanes and Spitfires as possible As the little crosses which represent Luftwaffe raids swarm over the south coast the player is stretched to the limit, keeping track of them, planning interceptions and generally taking charge of 10 RAF squadrons.

The game looks good and feels good and uses some excellent and innovative windowing techniques Although it would be improved with some readily available chart that would instantly present the stamina of each force (they vary from rested to 'end of tether') and the alert status of each There is no way of checking the latter so a player can often forget which forces are sitting in their cockpits waiting for the call to arms and getting exhausted

My major problem with the game is that it totally fails to tell you how it assesses victory conditions Presumably Winston and the cabinet consider strategical objectives before they fire you, so why can't the player know them too.

There are also some programming bugs The game crashed on me once ("It's in the drink, Sir, off Dover") and I won one game with an absurd kamikaze blitz after a huge Luftwaffe attack had resulted in all my aircraft being shot down The computer promptly boosted the strength of the non-squadron to '655' planes (it had been 27) and I merrily destroyed the main German strikeforce with it

Also there are the mysterious Heinkel squadrons which hover above Hampshire all day and can't be attacked

Peter Berlin

Spinning top

Program *Gyroscope* **Micro** Commodore 64 **Price** £7 95 **Supplier** Melbourne House, Castle Yard House, Castle Yard, Richmond, Surrey

This is an incredibly simple yet deviously addictive program from Melbourne House, based loosely on the arcade hit *Marble Madness*.

All you have to do is guide your spinning gyroscope down a superbly created 3D course full of craters, slides, and narrow paths, till you reach the bottom and then process to the next Sounds simple doesn't it – not so, for I spent hour after maddening hour trying to negotiate the humps and hollows only to come to grief each and every time There are 30 different courses to complete with a promise of a real surprise at the end

As if just guiding the gyro is not enough, there are numerous other obstacles standing in your way like slipping glass, magnets and little aliens which always appear in the most annoying places

Time is important, too The quicker you finish each course the more points you will accumulate and for every 1,000 points gained you get another 'life' If the timer drops to zero the gyro stops spinning and its curtains

One niggle is in the instruction leaflet, we are told we start with seven lives, in fact, you only get five, an unusual oversight for the normally meticulous Melbourne House This aside, it's a glorious game for those with the patience of a saint – and nice music too

Andy Moss

Desk job

Program *Ice Desk-top manager for the QL* **Micro** QL **Price** £49 95 **Supplier** Eidersoft, The Office Hall Farm North Ockenden, Upminster, Essex RM14 3QH

Most day-to-day users of computers in the commercial world are not experts, so if you want to market a successful business package – you have to make it as user-friendly as possible Up to now, the QL has been more a device for enthusiasts but Eidersoft has released a desk-top manager package aimed at giving even computer illiterates an integrated and versatile program aimed at unleashing the machine's real capabilities

ICE (icon controlled environment) consists of an Eprom cartridge which plugs into the QL's Rom port in the rear and a microdrive containing multi-tasking software enabling the user to load and switch between up to five programs depending upon the amount of the system's extended Ram. But, even at the basic 128K of the unextended QL, the software allows a diverse number of multi-tasking, file editing copy operations

The package also contains a mailmerge function for Quill/Archive and a name/address database At the moment, the mailmerge program is missing from the software being shipped, but buyers will be able to obtain an upgraded microdrive shortly (along with a full manual to replace the provisional one now being issued) at no added cost. Some "JS" versions of the QL will apparently not work with ICE, but the company will replace the Eprom cartridge with an adapted version which the computer will accept

Loading ICE gives a screen filled with little pictures representing the devices/functions you wish to access – a microdrive, a disc drive or Ram-disc, for example Control is via the cursor keys/space bar or a joystick which moves a targeting arrow around the screen with – depending upon your dexterity – a mouse-like movement ICE is fully mouse-compatible for those who want to spend a little extra cash on the real thing

Some of the graphics are quite good (a calculator option for simple maths) but others leave something to be desired – for example, an old boot for the "boot" function ICE's strength lies in the number of complex tasks that it simplifies and anybody wanting to use a QL for heavy duty, but who feels uncomfortable with a lot of involved Superbasic commands and inter-peripheral operations, should definitely consider buying it. I do recommend using a mouse or perhaps a joystick, however, as manipulating the keys can be a bit annoying

Brian Beckett

Rom at the top

Program *Inter-Chart Rom* **Micro** BBC B **Price** £36 80 **Supplier** Computer Concepts, Geddesden Place, Hemel Hempstead, Herts HP2 6EX.

Most people don't like figures but can grasp pictures quickly and easily

If you have to present the club's accounts, explain to your partner where you find the cash to buy a disc-drive, show to the uninitiated the results of a scientific experiment – then graphs are the answer

Drawing graphs can be a pain – or you can use *Inter-Chart*, the zippy chip that makes drawing graphs as easy as pie

Computer Concepts has produced a chip which makes it a positive pleasure to prepare graphs, bar-charts and pie-charts Plug it into your BBC and by typing **IC* You find a familiar menu deliberately designed to be similar to that used by *Wordwise*

It is extremely simple yet if you want to specify your graph in minute detail you can have a highly sophisticated one in a very short time indeed.

You start with a bar-chart The BBC's function and edit keys are used to manipulate your figures and labels

You simply type in your figures and the graph automatically builds up and rescales itself Then you go to the display option and choose whether to have a line graph, bar-chart or pie-chart

You add notes exactly where you want them can shade sections, highlight a section (on a pie-chart the highlighted part looks like a segment of pizza being removed from your plate!) You can display in colour

You can also overlay other charts – to compare last year's figures for example. Finally the whole display can be dumped to a printer. The chip is configured for Epson types but it is easy to adapt for other printers

Inter-Chart is superb The package is full of neat touches (eg, on pie-charts you can display the actual numbers or percentages at the touch of a key)

The documentation is clear and detailed And it is part of Computer Concept's link range which means you can import figures from for example the spreadsheet instantaneously

It makes it feasible to produce those visual aids your non-numerate audiences need!

Dave Watterson

Robin of Sherlock

As you may know *Robin of Sherlock* is an adventure game unlike any other.

It has almost nothing to do with the historical details of Robin Hood. Nor are the works of Conan Doyle dealt with in any real depth.

In this, the latest in a series of epic competitions held in this magazine, we ask: What does Robin Hood mean to you? In this diary extract printed below you can see how Silver Soft view Robin. Study it carefully. Well, quite carefully.

I leant back against the lamp-post, surveying the busy rush of traffic along Sherwood Boulevard. It had been a hard day at the forest. First there was the Dorothy Kid, bush-whacked on her way to the Wizard of Huddersfield, her dog held to ransom. Then there was the anonymous tip-off about the convent's link with Godfather Smurph. When his name crawled out of the files it always meant some sort of racket. I smelled a rat, and one using Brut 33!

Jerking myself away from the cold security of the streetlight, I trudged down a dim alley to where I knew I could get a cab and it wasn't long before Al pulled up. Al had always been a good cabbie but that night I couldn't help noticing something odd about him, or rather his cab. It had been stolen!

Yet another mystery in one day! Something had to be going down. I figured I'd better go and checkout Marian and see if she was okay. It looked like being a tough week!

What you have to do

After reading the diary extract we want you to come up with something along the same lines – another page from the Diary of Sherlock.

Don't write more than 200 words or it will be totally ignored. Do remember that there are no prizes for consistency, but legibility would be useful and is, in any event, something to be cherished.

Prizes

You don't just enter the competition for fun. The best diary page will win a first prize of two tickets for a special Robin Hood weekend (your choice of dates between March 21st and October 24th) featuring mediaeval banqueting, jaunts into Sherwood Forest to see the key Robin Hood sights and two nights in a four star hotel.

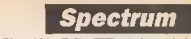
(Entrants must be 12 or over unless accompanied by an adult.)

Thirty runners up will win a copy of the computer game *Robin of Sherlock* for the Spectrum.

Where to send your entry

Send your page of Robin's Diary to *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP and clearly mark your envelope 'Robin of Sherlock Competition'.

The closing date for the competition is December 30th. The best of luck to everyone.





WILBUR

by T A Bartley

This week yet more code But not to worry, as the halfway mark has just about been passed now As before use the loader to plug in the data, and save after the previous week's efforts using Save "" Code 44778,5802

Meanwhile, if you are getting spots before the eyes syndrome tape copies can be obtained from the auther at a cost of £2 00 including p&p Write to T A Bartley at 81 Beverley Crescent, Grims by S Humberside

```
1000 REM    DECIMAL LOADER
1010 POKE 23609,50
1015  PRINT "START TYPING IN THE DUMP ONE NUMBER AT A TIME, EACH NUMBER FOLLOWED
 BY ENTER"
1020 LET T=0: FOR N=44778 TO 50579
1030 INPUT J: PRINT N,J: POKE N,J: LET T=T+J: NEXT N
1040  IF T<>330467 THEN  PRINT "DATA ERROR: CHECK LISTING'
1050 IF T=330467 THEN  PRINT "DATA OK"
```

[illegible]

[illegible]

Spectrum

[illegible]

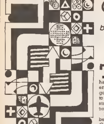
Bulletin Board Survey

300/300 boards

Name	Area	Number	Time	Comments
CBBS	Exeter	0392 53116	24 hours	Also 1200/75
Estelle	Harlow	0279 640511	24 hours	Also 1200/75
Oxford	Oxford	0865 67206	24 hours	Also 1200/75
Martel		01 300 7150	24 hours	Also 1200/75
NBBS	London	01 683 4290	Mon – Fri 2100-0600 + weekends	Also 1200/75
BASUG		0748 20106	Hours unknown	
B6BBS		0225 23274	2100-2450	
B6BBS-II	Felixstow	0394 276363	24 hours	
BASBS-III	Basildon	0905 770990	24 hours	
ITeC	Basildon	0268 22127	24 hours	Also 1200/75
NBBS	[illegible]	0908 23325	2100-0600	Ring back
305	Tyne and Wear	0207 068100	24 hours	
Beeboard	London	01 884 7000	Hours unknown	
Bloxham		0295 720012	1000-2000	
CBBS	Surrey	0888 25174	24 hours	
CBBS	Chiltern	0703 328323	2100-0600	
CBBS	London	01 300 3136	Sundays only 1700-2300	
Central	London	01 0288 6142	Hours unknown	
305	Chichester	0603 571071	24 hours	
TBBS/CNOL	Lancaster	0524 60300	1000 1500	Medical bias
CBBS	Cumbria	000 68314	24 hours	Ring back Also 1200/75
FORUM-80	Hull	0482 860106	Tues & Thur 1000-2300 Sat & Sun 1300-0200	
FORUM-80	Wembley	01 800 6500	Office hours evenings and weekends	Ring and ask for FORUM 80 (vocal)
HamNet	Hull	0482 497180	1900 0800	
BBS-1	London	01 500 0017	Thur & Sun 1000 0200	
BBS-2	London	01 346 2150	Mon – Fri 2000-2200 Sat 1200-0000 Sun 1300-1200	
Mailbox-80	Liverpool	051 600 0024	24 hours	
Mailbox-80	West Midlands	0384 620336	Mon – Sat 1730-0630 Sun all day	Ring back
MG-NET	London	01 330 2130	Sun only	1200-0000
Microlive	London	01 071 2388	24 hours	Microlive BBC2 TV program hours
Mirowek	Manchester	061 579 8286	24 hours	
NBBS	Norfolk	0692-63610	2300-0930	
NKABBS	Kent	0795 842324	2136-2600	
NBBS	N'th Birmingham	0827 000015	24 hours	Ring back
OBBS	Manchester	061 427 1500	0300-1400	
PIP	Sheffield	0742 007983	24 hours	
SABBS	Lanarkshire	0698 884804	24 hours	
88	Portsmouth	0243 511077	24 hours	
ITeC	Stoke	0782 265078	24 hours	Also RCPM Stoke
TBBS – city	London	01 600 4194	24 hours	
TBBS	Manchester	061 736 8440	24 hours	
TBBS	Southampton	0703 437200	Mon – Fri 1700-0830 + weekends	
MOBB	Manchester	061 730 0661	24 hours	
WABBS	Worthing	2003 42073	24 hours	Ring back
CABB	London	01 831 2070	24 hours	Also 1200/75
DISTEL	London	01 429 8182	24 hours	Also 1200/75
NBBS	Reading	0000 620106	24 hours	Also 1200/75
NBBS	Aberdeen	0998 641300	24 hours	Also 1200/75
88	London	01 455 6607	24 hours	Also 1200/75
OBBS	Morecambe	0524 600132	24 hours	Also 1200/75
NBBS	Cheshire	0630 77025	24 hours	Also 1200/75
NBBS	Wallington	01 000 2640	Mon – Fri 2300-1000	Also 1200/75
RCP/M	Stoke	0782 [illegible]	24 hours	Also 1200/75
FIDO F05E	London	01 318 4216	24 hours	
NBBSL	London	01 062 6700	2300-0800	
Stitcham	London	01 400 0012	24 hours	
NBBS	Essex	0372 28887	24 hours	
Futureman		0000 610000	Hours unknown	
Amrad	Solihull	021 744 1558	24 hours	
Ballingary	Ballingary	0902 000323	2100-0000	
88	Ipswich	0473 781330	2100 0700	
LABBS	London	01 373 6337	24 hours	
NBBS	Lutterworth	0655 54790	24 hours	
Maplin	Essex	0702 552481	24 hours	Teleshopping – Maplin electronics components.

The abbreviations used in the above lists are as follows:
ITeC — Information Technology Centre RCPM — Remote CPM,TBBS — The Bread Board Software (popular software on which a board is run) RSGB — The Radio Society of Great Britain

Ring back — this means that you ring the number, let it ring once, hang up, re-dial and then continue as normal



CONNECT 4

by Colin Ashworth

This is a game for two players, based on the popular Connect 4 game. After the title screen you have the opportunity to print the players' names. The computer decides who goes first. On winning there is an option to play again; if so, the winner always starts first. If there is a stalemate situation, then there is a choice to try again.

NB Don't attempt to run the program before it is completely typed in as the *CALL &BB03* command, which flushes the keyboard buffer, also partially disables the Escape key.

Program Notes

Line Nos	
10-150	Defines characters
160-200	Sets up variables, sound and tone envelopes
220-250	Draws grid
270-320	Introduction screen
330-360	Printing of blocks onto screen routines
370-490	Name of player routine
470-680	Main loop
590	Column 'full up' routine
600-790	Checking for winning routine
800-890	Winning routines
900	Stalemate routines

```
10 [illegible]
20 DATA 3,3,3,F,0F,1C,F0,F0
30-150 [illegible]
160-200 [illegible]
210 GOSUB 560
220 REM draw grid
230-390 [illegible]
400 LOCATE 1,14:PEN 15:PRINT player2$;" [illegible]
410 [illegible]
420 LOCATE 1,24:PEN 8:PRINT "PLAYER";firstpl;"GOES FIRST"
430 LOCATE 1,24:PEN 1:PRINT "*****ANY KEY*****";:CALL &BB03:CALL &BB18 [illegible]
440 LOCATE 1,24:PRINT "                    "
450 [illegible]
460 GOTO 480
470 CALL &BB03:IF firstpl=3 THEN firstpl=1
480 [illegible]
490 REM
500 REM
510 REM
520-760 [illegible]
770 REM
780 [illegible]
790 RETURN
800-990 [illegible]
```

CALENDAR

by John Beckett

If you are like myself and cannot remember the date or how many days there are in the month, then this is the program for you.

It is a once a year calendar program, which will give you a hard copy of the calendar from any year between 1783 and 6500!

The program is suitable for a printer which has Epson compatible control codes. If you have a printer which does not use the same codes, using the following list should make conversion easy.

VDU1,27,1,64 – Resets printer

VDU1,27,1,65,1,9 – Sets line spacing to 9/72"

VDU1,15 – Turns on condensed print

VDU1,27,1,108,1,28 – Sets right margin to 28 characters

VDU1,27,1,87,1,1 – Turns on enlarged print.

Program Notes

DEF PROCread Reads months into array

DEF PROCdoub (A$ x% y%). Prints a string of text at x% and y% in double height.

DEF PROCintro Provides program introduction.

DEF PROCmon Prints out each month.

DEF PROCu(F%) Turns on/off underline. 1 – on, 0 – off.

```
10REM --- Calendar --- Electron
20REM   John T K Beckett 1985
30DIM B$(12):PROCread
40MODE4
50PROCintro
60VDU2:PRINT TAB(10);:PROCu(1)
70PRINT Y$;" Calendar":PROCu(0)
80FOR M%=1 TO 12:PROCmon:NEXT
90VDU3
100CLS:PRINT "Continue (Y/N)";
110A%=(GET AND &DF)
120IF A%=89 THEN 40
130END
140:
150DEF PROCread
160FOR M%=1 TO 12:READ B$(M%):NEXT
170ENDPROC
180:
190DEF PROCdoub(A$,x%,y%)
200A%=&A:X%=0:Y%=&9:E=&900
210FOR J=1 TO LEN(A$)
220?E=ASC(MID$(A$,J,1)):CALL&FFF1
230VDU23,224,E?1,E?1,E?2,E?2,E?3,E?3,E?4,E?4
240VDU23,225,E?5,E?5,E?6,E?6,E?7,E?7,E?8,E?8
250PRINT TAB(x%+J,y%);CHR$224;TAB(x%+J,y%+1);CHR$225
260NEXT
270ENDPROC
280:
290DATA January,February,March
300DATA April,May,June
310DATA July,August,September
320DATA October,November,December
330:
340IF ERR=17 THEN 40
350REPORT:PRINT" at line ";ERL
360OSCLI("KEY0 LIST"+STR$ERL+"|M")
370*FX138,0,128
380END
390:
400DEF PROCintro
410VDU19,1,3;0;
420VDU2,1,27,1,64
430VDU1,27,1,65,1,9
440VDU1,15
450VDU1,27,1,108,1,28
460VDU1,27,1,87,1,1,3
470PROCdoub("Calendars",14,0)
480PRINT TAB(10,3)"John T K Beckett 1985"
490PRINT "This program will give you a copy of"
500PRINT"the calendar for the year you enter."
510PRINT STRING$(40,"-")
520VDU28,0,31,39,9
530INPUT "Enter year    ",Y$
540IF VAL(Y$)<1752 VDU7:GOTO530
550ENDPROC
560:
570DEF PROCmon
580Y=VAL(Y$):C=VAL(LEFT$(Y$,2)):D%=1
590IF Y MOD4<>0 D%=0 GOTO620
600IF Y MOD100=0 AND C MOD4<>0 D%=0
610IF Y MOD4000=0 D%=0
620Y=Y-1:S=365*Y
630YE=Y DIV4 S=S+YE
640YE=Y DIV100:S=S-YE
650YE=Y DIV400:S=S+YE
660S=S+1:S=S MOD7
670T%=31:IF M%=1 THEN 790
680S=S+T%:T%=28+D%:IF M%=2 THEN 790
690S=S+T%:T%=31:IF M%=3 THEN 790
700S=S+T%:T%=30:IF M%=4 THEN 790
710S=S+T%:T%=31:IF M%=5 THEN 790
720S=S+T%:T%=30:IF M%=6 THEN 790
730S=S+T%:T%=31:IF M%=7 THEN 790
740S=S+T%:T%=31:IF M%=8 THEN 790
750S=S+T%:T%=30:IF M%=9 THEN 790
760S=S+T%:T%=31 IF M%=10 THEN 790
770S=S+T%:T%=30:IF M%=11 THEN 790
780S=S+T%:T%=31
790S=S MOD7:@%=&020005
800PRINT STRING$(33,"-")
810PRINT TAB(13);:PROCu(1)
820PRINT B$(M%):PROCu(0)
830PRINT"Sun  Mon  Tue  Wed  Thu  Fri  Sat"
840FOR J%=0 TO 5:FOR J1%=1 TO 7
850D1=J%*7+J1%-S
860IF D1<1 OR D1>T% THEN D1=0
870D1$=STR$(D1):D1$=RIGHT$("     "+D1$+" ",4)
880IF D1=0 D1$="    "
890PRINT D1$,;:NEXT:PRINT:NEXT
900ENDPROC
910:
920DEF PROCu(F%)
930VDU1,27,1,45,1,F%:ENDPROC
```

NEW FUNCTION

by Dr R K Lowry

This article describes the function *NBSET(x)* which returns the number of bits set on in the least significant byte of x. On its own, this is a singularly useless piece of information to derive. However, the function is designed to be used in conjunction with the Super Basic *KEYROW* function. The value returned by *NBSET(KEYROW(0))* is the number of keys which are being pressed in row 0 of the keyboard. The main use I make of the function is in the unambiguous reading of the function keys. The function keys are read using *NBSET(KEYROW(0)&&59)* which returns 'one' when a single function key is pressed, zero when no function keys are pressed or 'two' when two function keys are depressed simultaneously.

The assembler source code consists of four subroutines. Subroutine *INIT* is the standard code which links additional functions and procedures into Super Basic. Subroutine *LI1* is a general purpose routine which returns a single long integer parameter in the register *D1*. If a string is passed or more than one parameter is supplied, then a bad parameter error code is returned in *D0*. Yet a third general purpose routine, *IFSTK*, is used to store the result held in D1 on the *RI* stack in the appropriate manner for an integer function.

The final routine is the guts of the *NBSET* function which simply *ANDS* the low byte of the argument with a set of single-bit masks and counts the number of times that the result is non-zero.

```
100 DIM array(5)
110 CLS:CLS#0
120 address=RESPR(512)
130 CLEAR:RESTORE
140 READ nwords
150 IF nwords<=0 THEN PRINT"Load complete":CALL RESPR(0):STOP
160 csum=0:FOR i=0 TO nwords-1:READ array(i):csum=csum+array(i):NEXT i
170 READ csum2:IF csum<>csum2 THEN
180 PRINT"Checksum error":PRINT"Correct checksum",csum2
190 PRINT"List of data":FOR i=0 TO nwords-1:PRINT array(i);",";:NEXT i:STOP
200 END IF
210 FOR i=0 TO nwords-1:POKE_W address,array(i):address=address+2:NEXT i
220 GO TO 130
230 DATA 6,24576,18,0,0,1,80,34835
240 DATA 6,1338,18979,17748,0,17602,18,53809
250 DATA 6,13132,272,20114,28672,20085,8818,81369
260 DATA 6,88,13432,28,20114,18072,36232,79138
270 DATA 6,28913,3139,1,8128,8758,78828,48311
280 DATA 6,20665,11889,82,20877,20085,24832,107935
290 DATA 6,38,19072,26136,30728,36597,17027,182836
300 DATA 6,2048,-18385,26390,21059,7818,21252,48048
310 DATA 6,28554,8787,21836,17028,20085,8818,185828
320 DATA 6,88,21807,11993,88,13745,-26528,22707
330 DATA 1,20733,20733
340 DATA 1,20083,20083
350 DATA 1
```

```
BP.INIT   EQU       $110
CA.GTLIN  EQU       $118
BV.RIP    EQU       $58
ERR.BP    EQU       -15
          BRA       INIT
PROCDEF   DC.W      0
          DC.W      0
          DC.W      1
          DC.W      NBSET-*
          DC.B      5,'NBSET'
          DC.W      0
*
* Subroutine INIT
*
* Links machine code procedures
*
INIT      LEA       PROCDEF,A1
          MOVE.W    BP.INIT,A2
          JSR       (A2)
          MOVEQ     #0,D0
          RTS
*
* Subroutine LI1
*
* Returns single procedure argument
* as long integer.
*
* Output registers
*
* D0 - Error Code
* D1   Argument
*
* A1/A2/D2/D3/D6 destroyed.
*
* Name table pointers passed in A3/A5
*
* Move arguments onto RI stack
*
LI1       MOVE.L    BV.RIP(A6),A1
          MOVE.W    CA.GTLIN,A2
          JSR       (A2)
          TST.L     D0
          BNE.S     LI1X
*
* Ensure that there is 1 argument
*
          MOVEQ     #ERR.BP,D0
          CMPI.W    #1,D3
          BNE.S     LI1X
*
* Load value off stack
*
          MOVE.L    0(A6,A1.L),D1
          ADDQ.L    #4,A1
          MOVE.L    A1,BV.RIP(A6)
          MOVEQ     #0,D0
LI1X      RTS
*
* Function NBSET
*
* Counts number of bits set in low
* byte of parameter
*
* Get parameter
*
NBSET     BSR       LI1
          TST.L     D0
          BNE.S     NBSETEX
*
* Count bits
*
          MOVEQ     #8,D4
          MOVEQ     #1,D2
          CLR.L     D3
NBSET0    MOVE.B    D2,D0
          AND.B     D1,D0
          BEQ.S     NBSET2
          ADDQ.W    #1,D3
NBSET2    LSL.B     #1,D2
          SUBQ.B    #1,D4
          BNE.S     NBSET0
*
* Return result
*
          MOVE.L    D3,D1
          BSR.S     IFSTK
          CLR.L     D0
NBSETEX   RTS
*
* Subroutine IFSTK
*
* Stores integer function result on
* RI stack
*
* Input register
*
* D1 - Value to be stored
*
* Output register
*
* D4 - Set to appropriate code (3)
*
* A1 Destroyed
*
IFSTK     MOVE.L    BV.RIP(A6),A1
          SUBQ.L    #2,A1
          MOVE.L    A1,BV.RIP(A6)
          MOVE.W    D1,0(A6,A1.L)
          MOVEQ     #3,D4
          RTS
          END
```


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PAUSE MODE

by David Shaw

This is a short but effective machine code routine which can be used by programmers of any experience on the 64, a colourful pause routine.

Using interupts, it will allow the user to freeze Basic and machine code programs by simply pressing F1. While the pause mode is operative, a very colourful screen display is generated, giving a constant reminder that the computer is in pause mode. Pressing F1 again returns control to the original program, leaving all registers, etc. untouched, and most importantly, the screen display intact.

Either use the Basic loader (it's short and has a checksum) or the assembly listing to install the routine.

I'm sure that everyone will appreciate the program next time the doorbell rings – and you are just about to get that high score!

```
1 B=0:FORT=49152TO49243:READA:POKET,A:B=B+A:NEXT:IFB<>12986THENPRINT"CHECK DATA"
2 DATA120,169,192,141,21,3,169,13,141,20,3,88,96,165,203,201,4,208
3 DATA55,32,77,192,174,32,208,134,251,174,33,208,134,252,162,8,232
4 DATA142,32,208,142,33,208,160,0,200,192,40,208,251,224,31,208,230
5 DATA32,159,255,165,203,201,4,208,227,166,251,142,32,208,166,252,142
6 DATA33,208,32,77,192,76,49,234,32,159,255,165,203,201,4,240,247,96
7 DATA240,247,76,49,234
8 SYS49152
```

```
LINE# LOC. OBJECT LABELS        LINE

  10 C000                       .ORG   $C000
  20 C000 78                    SEI              ,SET IRQ INTERUPTS
  30 C001 A9C0                  LDA #$C0         ,TO JUMP TO PAUSE
  40 C003 8D1503                STA $0315        ,ROUTINE AT $C00D
  50 C006 A90D                  LDA #$0D          APROX. 60 TIMES
  60 C008 8D1403                STA $0314         A SECOND.
  70 C00B 58                    CLI
  80 C00C 60                    RTS              ,RETURN TO BASIC
  90 C00D A5CB                  LDA $CB          ,CURRENT KEY PRESSED
 100 C00F C904                  CMP #$04         ,IS IT F1
 110 C011 D037                  BNE EXIT         ,IF NOT GOTO EXIT
 120 C013 204DC0                JSR TEST
 130 C016 AE20D0 COLVALS        LDX $D020        ,STORE CURRENT BORDER COL.
 140 C019 86FB                  STX $FB
 150 C01B AE21D0                LDX $D021        ,STORE CURRENT SCREEN COL.
 160 C01E 86FC                  STX $FC
 170 C020 A200   START          LDX #$00
 180 C022 E8     STORE          INX
 190 C023 8E20D0                STX $D020        ,STORE NEW BORDER
 200 C026 8E21D0                STX $D021        ,AND SCREEN COLS.
 210 C029 A000                  LDY #$00         ,DELAY LOOP TO
 220 C02B C8     LOOP           INY              ;COUNT TO 40
 250 C02C C028                  CPY #$28         ,TO GENERATE NICE
 260 C02E D0FB                  BNE LOOP         ,COLOURS ONSCREEN.
 250 C030 E01F                  CPX #$1F
 260 C032 D0EE                  BNE STORE
 270 C034 209FFF                JSR $FF9F        ,USE KEYSCAN ROUTINE
 280 C037 A5CB                  LDA $CB          ,AND CHECK WHETHER
 290 C039 C904                  CMP #$04         ,F1 HAS BEEN PRESSED
 300 C03B D0E3                  BNE START        ,TO EXIT PAUSE MODE.
 310 C03D A6FB                  LDX $FB          ,REPLACE ORIGINAL
 320 C03F 8E20D0                STX $D020        ,SCREEN AND BORDER
 330 C042 A6FC                  LDX $FC          ,COLOURS.
 340 C044 8E21D0                STX $D021
 350 C047 204DC0                JSR TEST
 360 C04A 4C31EA EXIT           JMP $EA31        ,SERVICE NORMAL INTERUPTS
 370 C04D 209FFF TEST           JSR $FF9F        ,USE KERNAL KEYSCAN
 380 C050 A5CB                  LDA $CB          ,CURRENT KEY PRESSED
 390 C052 C904                  CMP #$04         ,IS IT STILL F1?
 400 C054 F0F7                  BEQ TEST         ,YES,TEST AGAIN
 410 C056 60                    RTS              ,RETURN
```

Line Scroll on Spectrum by Ray Heslop

These routines will scroll just one line of the display either to the left or right. Listing one scrolls from right to left, and listing two from left to right.

The address 60000 can be changed to any spare memory location as it is only used as a variable.

To test the routines, simply print two lines of anything at the top of the screen and type
Randomise Usr 50000 Randomise Usr 55000

To alter the line you wish to scroll you must (in listing one) load DE with the address at the first byte of the first character in the line you wish to scroll, and load HL with one above DE.

In listing two, load DE with the address of the bottom byte of the last character in the line you wish to scroll, and load HL with one below DE.

Both routines are relocatable

```
ORG 50000
LD B,8
LD DE,16384
LD HL,16385
LD (60000),HL
LOOP PUSH BC
LD A,(DE)
LD BC,31
LDIR
LD (DE),A
LD HL,(60000)
INC H
LD (60000),HL
LD DE,(60000)
DEC DE
POP BC
DJNZ LOOP
RET
```

```
ORG 55000
LD B,8
LD DE,18239
LD HL,18238
LD (60000),HL
LOOP PUSH BC
LD A,(DE)
LD BC,31
LDDR
LD (DE),A
LD HL,(60000)
DEC H
LD (60000),HL
LD DE,(60000)
INC DE
POP BC
DJNZ LOOP
RET
```

Big Screen on Vic 20 by L W Betteridge

When this program is *'Run'* a much larger screen will be seen. The normal area of the screen is the lower half of this new screen. Conventional printing will only work in this lower half, to access the upper half we have to use the *Poke* command. Taking the screen as a whole, the bottom left is *Poke* location 8185, as is usual but the top right of the screen is 7165

This enlarged screen can be switched in and out by using SYS 828 and by pressing *Run/Stop* and *Restore* together

```
10 FOR I=828 TO 856
20 READ A
30 POKE I,A
40 NEXT I
50 DATA 169,28,141,52,0,141,56,0,169,6,141
60 DATA 0,144,169,21,141,1,144,169,30,141,2,144
70 DATA 169,68,141,3,144,96
```

Line Count on Commodore 64 by Peter Graves

This program counts the number of program lines in a Basic program, irrespective of how they are numbered.

When a program line is stored in the memory it has a link address stored with it, holding the address of the start of the next line. This program begins at the start of the normal line storage area (address 2049) and jumps from line to line using the link addresses, counting one each time until it reaches the end of the lines in memory – detected by the zeros in the link address following the last line

```
63000 PRINT CHR$(147):AD=2049:N=-4:REM THESE 4 LINES ARE
NOT INCLUDED IN COUNT!

63010 IF PEEK(AD)=0 AND PEEK(AD+1)=0 THEN END

63020 AD=PEEK(AD)+256*PEEK(AD+1):N=N+1

63030 PRINT CHR$(19);"NUMBER OF LINES = ",N:GOTO 63010
```

Code Words

Name: Andrew Pennell

Hi Soft programmer and author

I began computing when I was bored at my (single sex) school

The only way you could stay in and avoid dull things was to use the school's computer, which was actually an old teletype terminal connected to, I think, an ICL. The first program I ever wrote was a version of *Monopoly* for several players

I continued with Basic on the ZX81 and, with the aid of Toni Baker's book on writing machine code on the ZX81, gradually learnt that

At home I mostly use a Mackintosh now Also a QL – with disc drives With discs it's actually a good machine but just no good for games because it lacks enough graphics modes

I really rate Bill Atkinson who designed the graphics routines on the Mackintosh – they haven't been surpassed Also Andy Hertzfeld who did a lot of the other Mackintosh work In the games field I like everything that Mat thew Smith has done

For Spectrum programming I rate Hisoft's *Devpack*; it has very advanced features for a utility on a small computer including things like Macros (although you could say I'm biased because I work for them) On the QL I quite like Sinclair's Assembler because it's fast.

The thing I'm most proud of as a programmer is a new 68000 assembler that I'm working on – I think it's faster and more powerful than any of its competitors

Name Andrew Pennell

Age 21

Favourite Programs

Jet Set Willy **for its originality when it came out and brilliant programming** ***Atic Atac*** **because it was one of the few games I actually played seriously making a map and so on and** ***3D Ant Attack***, **because of the programming**

Favourite Machines

The Mackintosh for everything – it's a wonderfully neat machine But the Amstrad 6128 is an excellent all-round machine and the Spectrum has to take some credit for virtually creating home computing in this country

Softography

The Sinclair Demo cartridge for the Interface One and Microdrive package Print Utilities for Sinclair ***QL Switcher***, **a utility that lets you load in four Psion packages at once** ***MonQL***, ***Devpack QL*** **and** ***Devpack ST***

Hobbies

I like cars and drinking real ale With the former its mainly driving them and very occasionally buying them I also enjoy writing books and magazine articles.



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Memory expansion

Hardware *Memory Expansion Board* **Price** 64K £49 95, 256K £99 95 **Micro** Any Amstrad CPC **Supplier** DKTronics, Longs Industrial Estate, Englands Lane, Gorleston, Great Yarmouth, Norfolk NR31 6BE

The potential for memory expansion has always been promoted as integral to the CPC machines It's peculiar therefore that Amstrad has shown no interest in selling expansions itself. Spurred on by the release of the 6128, DKTronics has leapt where Amsoft fears to tread and I'm sure that it will reap its own reward.

Two boards are available, 64K and 256K Like the 6128 the extra memory is only usable from Basic via software, RSX Basic keywords or using the *Out* command.

Commands for loading and saving 16K screens into any of the new memory blocks are complemented by the ability to switch the screen Ram between two addresses in turn Together these features allow some impressive animation techniques

Data, in the form of variables, strings or arrays can be stored in, and retrieved from specified areas in the new memory Information in the expansion can also be used one byte at a time via *IPeek* and *IPoke*. Some of the most useful commands are for the rapid storage and retrieval of the contents of screen windows

Finally *IAskram* allows you to test the memory for capacity and errors, *IBank* will switch an entire 16K block without worrying about the contents and *IEmulate* lets you fool any program that performs a Romtest to check that it is actually running on a CPC 6128

It now costs the same to buy 256K as it did to get an early 16K rampack for the ZX81, but it is perhaps more important that the advance of technology should have put an end to 'Rampack wobble'

The extra Ram of the 256K board will only be useful in your own programs, unless it sells in large enough numbers to attract software, or to persuade software writers to at least allow you the option of using it On the other hand it is much cheaper per K compared to the 64K Both boards will be sold to fit the 6128 as well. You can add up to 512K of banked memory in total.

DKTronics has made every effort to make the expansions compatible with 6128 software, but realistically admits that a small percentage of programs will probably need adaption. Any sensible software house will widen its market by making sure that all releases work with the 464/664 and board

The memory is fully compatible with CP/MPlus but DK does *not* supply you with a system disc to use However, since CP/Mplus with a large program area was regarded by many as the primary vindication of the 6128, some important business programs recently released run under this system only DKTronics should be pestered to bring out an optional CP/Mplus disc as soon as possible

To date, there are only two 6128 specific programs to test the board on *Tasword 6128* is the best of the *Taswords* to date – and as long as the DKTronics installation software is run first it works smoothly on the 464

The second *Masterfile 128* is an expanded version of the successful database with 64K free for data. It incorporates features from the *Masterfile Extension Pack*, ie User Basic that lets you customise your database and perform almost any new function you need, file merging, and data export, the ability to save data in a variety of file formats

Both of these programs represent better value than the equivalent 64K releases There will doubtless soon be more 128K business software, and perhaps some games as well. The boards work well and therefore offer salvation for those that feel obscurely cheated by the release of the 6128 With the proviso that something needs to be sorted out about CP/Mplus, I can't recommend them strongly enough.

Tasword 6128 – £24 95 from Tasman Software, Springfield House Hyde Terrace, Leeds LS2 9LN.

Masterfile 128 – £34 90 from Computer Software Design, 57 Trap's Hill, Loughton, Essex, IG10 1TD Available from Amsoft next year

Tony Kendle

Casio CM-100

Hardware *Casio CM 100* **Price** £17 95 **Micro** Any **Supplier** Casio Electronics, Unit 6, 1000 North Circular Road, London NW2 7JD

The first Casio calculator I ever had – eeee . it were back in 1975 – weighed about two pounds, you had to wheel the batteries around in a trolly and the illuminated display jammed most electrical appliances within a radius of 100 yards

Things have changed a bit since then nowadays Casio make more models of calculator than there are brands of cat food Far from being yet another gimmick, Casio's new CM 100 may well prove to be a useful tool for many programmers

It has all the normal arithmetic functions of course, but what makes it interesting for any programmer is that it can calculate and perform logical operations, shifts and rotations, not only in decimal, but in binary, hex, and Octal You can switch freely between each mode, with automatic conversion A nice trick – in fact the whole thing appears to be well thought out with the machine-code programmer in mind.

Although the liquid crystal display is limited to the normal 10 digits octal and binary numbers overflowing this area can be displayed as consecutive blocks of eight figures, up to 32 digits in the case of binary Various bit sizes can be set (one, four, eight 16, 32) and flags indicate when a carry has occured the most significant bits being deleted

Perfect for machine-code programmers then, but what about general use? No room on the board for any normal scientific functions – you've got a percentage button, square root, square, reciprocal, and that's about it!

If you're an ardent machine-code programmer, then this little device will be of great interest possibly even of great use For the Basic hacker, though, not really worth the investment

John Cook

Arcade Avenue



Altered layout

An interesting packege has errived in the form of *The Hacker* no relation to the Activision game from a new company called Utopia Software This is designed to help people poke around in computer games, to make changes and learn how they work The program is compact and resides in a choice of two little used areas of the Spectrum's memory Once there you *Load* in your computer game in top which may be difficult if the software is protected Usually, however, you should be able to load at least some of the game into memory *The Hacker* will then provide the following options, you can view and delete sprites, study and alter high score tables and text, dump text to a printer (useful for adventure games), search for infinite lives pokes, find pointers to areas of graphics or text, and study and perhaps alter the layout of screens on multi-level games

From my experience of the problems people have with pokes, absolute beginners and those who don't understand the way the Spectrum loads files, will probably not be able to make full use of this program. You will also find that it can't be used on all of your software notably those that are protected by speed loaders or which have headerless blocks It also won't possibly be able to recognise and display all screen formats used in different games Having said that I'm sure that a lot of readers of this column, who seem to find the process of digging around in the insides of games more fun than the games themselves, should find it invaluable It costs £4 95 from Utopia Software, 38 Ridley Avenue, Acklam, Middlesborough, Cleveland TS5 7AN

Finders Keepers

Extra energy

Amstrad owners may be interested in another program I was sent called *RSX Basic*. This gives you no less than 17 new Basic keywords including an option to deprotect Amstrad Basic programs It will be of particular use in entering Pokes into the headers of commercial games *RSX Basic*, with instructions, is available from Kevin Young, 50 Ronelean Road, Tolworth, Surbiton, Surrey KT6 7LL, at the extremely reasonable pries of £3 00

Now then, on with the tips John Powell and Chris Butcher of Brecon have finished Mastertronic's *Nonterraqueous*, which is no mean feat, and offer these hints for those still struggling

"Make a map of squares numbered from 1-42 upwards, 24 across labelled alphabetically The rocket fuel can be found at Q27 A teleport at L7 takes you to D39 The key opens the doorway at the top of the main passage, you need the rocket, fueled, to get there Make sure you have a bomb with you or you can't get past the laser

"To cheat and gain extra energy just keep going between two rooms on the ground (any level) and your energy goes up five points each time The last screen is at A42 When you finish a ZX81 appears and you get the message "CONGRATULATIONS YOU HAVE FOUND THE EVIL ZX81 WITH RAM PACK LAIR WELL DONE."

Underwurlde

"The game is hard to map because if you go through certain exits you end up in a wall and the game crashes " Well, that doesn't sound right! Has anyone else had this trouble with the game, and has anyone told Mastertronic?

On the subject of Mastertronic no one has managed to solve the challenge posed by David Jones, the author of *Finders Keepers*, so here to put you out of your misery are the special pokes to enable a transport function (Spectrum version)

The *Pokes* are 28802,194 *Poke* 28803 145 *Poke* 28804,113 To insert them *Merge* the basic loader and enter them before the *Rand Usr* statement. You can than go to different rooms by pressing the down key and any letter from A to W Pressing O will return you to Basic If you read this David, thanks

Peter Page and Andrew Woode have written about the Odin game *Nodes of Yesod* (sic) which they recommend as "a great game that steals all the good parts of *Underwurlde* and disposes of the rubbish' Pressure of space stops us printing your map, but here are the tips and thanks for writing.

"The first task is to catch a mole The easiest way to do this is to walk along the surface until you see one and wait by the crator one! he pops up again You must then make friends with the mole which is done by leaping on him (funny way to make friends!)

'Once this is done make your way to the lunar caverns by falling down a pot hole There are six pot hole screens, two with two holes each

"The map is a 16 × 16 grid If you number this 1-16 down the left and A-P across then you will find the following

"Object rooms contain either a helmet (extra lives) or an alchiem. You need to collect eight alchiems to finish (we think) The location of the objects differ rather like in Ultimate games but we have found things in P2 L3 B4 F4 J4 M4 B5 D5 J5 E6 J6 K6 P6 O7 A8 E8 G8 M8 O8 E8 M9 O9 A10 C10 D10 M10 G11 P11 K12 L12 D13 A14 K14 M14 D15 G15 K15 D16 M16 P16

"Edible walls can be removed by pushing the mole into the bottom of them These are found on the right of rooms A2 O2 D3 E3 P3 F4 L4 B5 D5 F5 J5 N5 M7 O7 A8 D8 I8 I9 N10 P10 B11 C11 I11 812 F12 F12 H12 N12 P12 D14 F14 N14 P14 D16 E16 F16 M16

Fusty tunnel

"Transport rooms are found at G7/H7 A16/17 K16/17 Tornadoes here will deposit you into the transport room adjacent to it

"You get some gravity sticks when you find a helmet Dropping one will drag the nasties to the ground and kill them

"One way floors, hidden areas in the following rooms, drop you into the room below N6 P7

"The rooms from A2 to A7 from a 'gusty tunnel' mentioned in the booklet Falling from the top will float you safely to the bottom. Jumping form the bottom will float you to the top (make sure that you are facing an open door or you will hit the ceiling and die)

"There are certain inaccessible rooms at B14 G13 G8 O13 Perhaps they will open up once eight alchiems have been found "

Tony Kendle



Still stuck?

Some time ago and I'm sorry I haven't mentioned this before, two adventurers rang the offices of Popular to tell us of their achievements – Ralph Bruckshem and Andreas Gamsen or Moers of West Germany managed to solve *Fourth Protocol* in just three weeks.

The Fourth Protocol is one of those programs that interested me a great deal, being released with much publicity and many screen-shots unfortunately, the reality is that I have never got around to seeing it, so any advice you may read here is received (but of the highest standard, I'm sure)

James Cesaro, for example wrote to me after seeing a plea for help in the Adventureline concerning In part the questions asked by Sir Anthony Plumb where happened' and how recruited use be answered Gasa' and 'False Flag' respectively (the latter is mentioned only in the handbook included with the packaging)

Giving a bit more away, James recommends flying to Stockholm and searching the overseas area – he says that you must be very quick otherwise risk being posted to the Falklands The actual order of events, says James, is Go to Stockholm Look at Civil Record Go to Umea and then Go to Anna who will provide you with proof of Nilson's real identity Sam Johnson must also be followed as a friend of his has important information pertaining to the final part of the adventure

James is happy to give help to anyone currently stuck in *Fourth Protocol*, and he can be found at: 68 Tollgate Drive, Grasslands, Colchester, Essex CO3 5PR From Norway, Alf-Ivar Holm sends his plea concerning *Fourth Protocol* I don t know what to do with the Abbe – and Thorp affair

In *Lords of Time* All, the Snow Queen in the ice cube will give you the Sword (though you should beware of killing the Knight) and you should leave the man in the stocks alone (let justice take its course) In the Roman scenario of *Eureka!*, you must wait on the road outside the army camp for a night before attempting to *go* in (and incidentally, 'Cave Equus' translates as 'Beware *to* the horses' – 'Cave Equi' is the correct way of saying Beware of the horse')

Finally to get the lamp in *Golden Apple*, you must first switch off the gas main lever in the gate house – then to use the lamp, just type On/Off as required ensuring that you don't waste it when not needed

Back to *Fourth Protocol* now, where Scott MacFarlane of Edinburgh has solved Apps as well as Willis, Warburton, Allen, Bracton and possibly Johnston – possibly, says Scott, because Pasternak, his contact muttered just before he died 'SVETOFOR' What does it all mean Scott wants to know? Another problem lies in how to listen in to Faulkner s conversation and finally Scott needs help in decoding the NATO papers Write to Scott for mutual help and consolation at 2 Broomside Terrace, Corstorphine (it's a fine town!), Edinburgh EH12 7LZ

Screen dump from *The Fourth Protocol*

From Cardiff Steven Edwards writes asking for help in the Abbe affair ('how do I stop Stanistar defecting?') and how to stop Bracton phoning him all the time He s always running out of time in Stockholm – see James' recommendations, Steven, or write to Scott.

Daren Green, meanwhile, is also having trouble with those NATO documents and can't get any more than 78% 'Also, how do I solve Building 17 security?' He is at 85 Stamford Road, Dagenham, Essex RM9 4EX and would love to hear from you.

Mr J Jennings wants to use the lift, but can't until he finds the code – the portable computer tells him that x = 3, and this is as far as he can get Tips he passes on to other readers are – the correct order of importance of the security list is S34612 and to ring medical security, put 28 watchers on Bracton not Thorp. His address is 80 Druce Way, Blackbird Leys, Oxford

A few weeks ago, I mentioned CRL's adventure creator, *Genesis* the Elf's little helpers slipped up a bit and attributed the program to Silversoft. While it's true that *Bored of the Rings* will be written for the Amstrad using *Genesis*, the utility was actually written by Camel Micros for CRL, and I apologise to all parties At around the same time, I offered some help to a reader stuck in *Smuggler's Cove*, and I confused everyone by referring instead to *Pirate's Cove*, obviously a completely different adventure!

Camel's is not an adventure I'm familiar with, so anyone requiring help would do well to write to Camel at Wellpark Willeys Avenue, Exeter, Devon EX2 8BE

Do you listen to music while you are adventuring? A whole article could be written about the different sorts of scene-setting music that players like to listen to while working out how to unlock the door But a newly-released double album provides the Dungeon-and-Dragoner as well as adventurers with ready-made mood music Not only do you get for your money a beautifully-painted gatefold cover and music with evocative titles like *The Sorcerer's Apprentice*, *The River of Souls*, *The Dragon Passages*, *Hobgoblins* and *The Bloodguard* (beats *Careless Whisper* and *Young Guns go for it*), but also two dungeons for the D&Der The whole project has the active participation of TSR the original producers of D&D

The music's pretty good in its own right, and the narration by the late Valentine Dyall (whose tonsils seem to have been dipped in treacle), goes even further in transporting you into a world of fantasy

Not only would this make an ideal Christmas present for your favourite adventurer, but if your computer finally gives up the ghost, then you can lower the lights and play *First Quest* from Filmtrax Records, catalogue number DRAGON 1

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Oric adventure

K Robinson of Newcastle under Lyme, writes

Q **I am writing a graphics adventure for the Oric-1 and I need to know the position of the cursor when in ordinary and in hi-res mode. How can I do this please?**

A Address 616 holds the Y cursor (ordinary mode)
617 holds the X cursor (ordinary mode)
537 holds the X cursor (Hires)
538 holds the Y cursor (Hires)

I am pleased to see that someone is still producing programs on the Oric don't forget to let Tony Bridge have a look at your finished product!

Peculiar program

Anthony Lenaghan of Sharjah Soccer Club, United Arab Emirates, writes

Q **Here is a small listing for the Spectrum.**

```
5 Border O
10 Border 2: Border 5
15 GO TO 10
```

The program uses the following keys: *Space* to reverse quickly; *Symbol Shift* to pause; any other key to reverse slowly.

Could you please explain why the machine reacts this way, when there are no keyboard input statements in the program?

Also do you know of any books which teach Forth as used in the White lightning language from Oasis Software, as I find the Forth section in the manual very confusing.

A Although there are no statements in your program that does not mean that the keyboard is not being read by the Rom software, does it?

In fact this is one of the causes of the effect you describe, the other is the way that the Spectrum produces the *Border* colour You will have noticed that on loading you get a striped border and a lot of noise! This is produced by the equivalent of the *Out* statement which can be affected by a key depression, as this affects the contents of certain system variables The actual effect produced varies from model to model on the Spectrum On the Plus for instance only *Space* produces any real effect and that is only to slow down the display

As far as Forth is concerned I particularly like *Exploring Forth* by Owen Bishop (plublished by Granada) Although all the examples are produced via a BBC, Forth is such a portable language (unlike Basic) that it makes no real difference

Keyboard training

C Puncher of Barry, South Glamorgan, writes.

Q **I have recently been considering a Spectrum Plus up-grade, but suddenly my keyboard has stopped working. The fault turned out to be a tear in the eight-line, connecting ribbon and, as my Spectrum is two and a half years old it is not covered by the guarantee. Does the new Spectrum keyboard still require a new membrane?**

A The Spectrum must have a new membrane fitted when it is up-graded to a Plus, as keyboard layouts are somewhat different

BBC emulator

Alan Butt, of Camberley, Surrey, writes.

Q **I wondered if there is a device for the BBC B which allows it to play Commodore games – or any other games. If there is such a device, where can I get hold of it, and how much would it cost?**

A I'm afraid I don't know of any emulators for the BBC however, if anyone out there knows of one, please write to *Popular* and tell us!

One-time file

R McHugh, of Manchester, writes

Q **I wish to set up a file of one-line entries, but in such a way that when I wish to search one out, I also want to see the six lines preceding and following the line selected. How can I program for this on my Spectrum.**

A One way would be to write record numbers as well as the data that you wish to store (these would simply be the sequential number of the record on the file, starting at one)

Then it would be a simple matter to search the file for the correct start record number required (after having found the desired record of course!) and read the 13 records required.

One other method would be to use arrays to store data (up to six records at a time being stored in this way), then when the desired record is read, the preceding records will already be available in the array, and it will only be necessary to read the following six

Printer repair

David Mills of Biggin Hill, Kent, writes

Q **I own a Sinclair printer that was given to me after the guarantee had expired. The main problem seems to be the lack of power it is receiving. When the automatic feed button is pressed nothing happens. Neither *Llist* or *Lprint* work. Are there any companies that repair these printers?**

A As with computers there are a number of companies that will repair your printer that regularly advertise in *Popular* I have mentioned many names in the past At the moment I do not know how many of these companies still quote for repairs to ZX printers, except one Interservice Electronics Ltd 85-95 Park Street, Southend on sea Essex SS0 7PX

A load off your mind

Frank Nyatt of Manchester writes

Q **I am having problems loading programs into my Spectrum. When I first bought it 2½ years ago it loaded programs as stated in the manual, but now it will only load with the tape recorder at full volume.**

A The problem is most likely to be the input/output sockets on the machine into which the Ear and Mic leads are connected. Any reputable repairer will carry out any necessary repairs

Up-grade uncertainity

J M Ass of London, writes:

Q **Having owned a Spectrum for several years, I want to up-grade it to a better future games machine. Anyway what I wanted was a Commodore 64, but along came the Plus/4 and the Amstrad. Could you tell me if 64 software is compatible with the Plus/4 as the Plus/4 is cheaper at the moment. Also what about the Amstrad?**

A First things first Commodore 64 software is not compatible with the Plus/4. Remember too, that the compatible C128 is now available However, to run CP/M to its best advantage, you will also need Commodore's 80-column monitor (£295) and its new fast disc drive, the 1570 (£199)

The Amstrad has some good software, though not as much yet as the C64, but runs CP/M more easily than the C128



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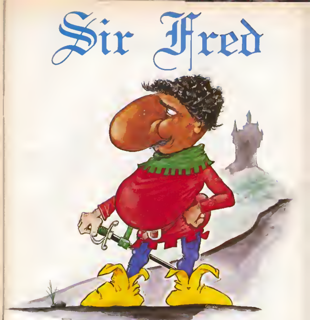
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Eureka (Nazi Germany) on C64. How do I use the dynamite and where do I use the ID card? Marcus Liversedge 387 Radcliffe Road Darcy Lever Bolton Gtr Manchester

Zork II on Apple What is the answer to the riddle in the riddle room? Lawrence Coleman 28 First Street East Fairwood Johannesburg 2192 Transvaal South Africa.

Kentilla on Spectrum. I can't get through the glowing ward nor can I find the key in a chest. Sara Greenhough 27 Clough Road Birkby Huddersfield

Hampstead on Spectrum Have bought suit with credit card – what next? Can help on The Hobbit. Paul Rollinson, 18 Church Street, Ockbrook Derbyshire

Eureka on Spectrum. I need help on all the adventures. How do I get into the house in the Caribbean section? Dorothy Rees 11 Rede Way Great Cornard Sudbury Suffolk (0787 78891)

Fantasia Diamond on Amstrad. How do you cross the river or open the window in the caves? Andrew Renouf 113 Le Squez, St Clement Jersey CI

Emerald Isle on Atari How do I cross the river? Where is the identity card? Adrian Carter 28 Little Norton Lane Sheffield

Catacombs on C64. How do you get past the coffin lid, the mega rat and the pilgrims pathway? Christopher Waite 16 Sussex Close Boreham Chelmsford Essex

Twin Kingdom Valley on C64 Where is the giant, the silver dagger and the staff? Christopher Waite 16 Sussex Close Boreham, Chelmsford, Essex

The Hobbit on BBC How do I get out of the goblin's dungeon? J P Tompsett 3 Tiggington Avenue Church Warsop, Mansfield Notts

Crystal of Chantie on Spectrum. How do I get the magic staff out of the rock? Steve Richmond 8 Pulborough Way Flansham Middleton on Sea Bognor Regis Sussex

Classic Adventure on C16. Cannot find way to get past temple. P W C Weaver 478 Mutton Lane Potters Bar Herts

Bored of the Rings on Spectrum Where is the pepper? Val Douglas 108 Gladstone Road South Willesborough, Ashford Kent.

Exodus Ultima III on C64 How do you increase magic points for spells G and above? Where are the exotic arms? I have found the city of dawn and 7 dungeons. S C Rimmer 4 Bartlett Close Preston Hull.

Bored of the Rings part III on Spectrum. Have got map. How do I get out of the maze? Do I have to open desk in office and if so how? Peter Harwood, 8 Haggie Avenue Holy Cross Wallsend Tyne and Wear

Twin Kingdom Valley on BBC How do I kill the witch and dragon in the castle? J P Tompsett 3 Tiggington Avenue Old Church Warsop Mansfield Notts

Woodbury End on Electron How do I get out of the darkened room? Ingrid Logan 8b Yarborough Close Godshill Isle of Wight.

Ground Zero on Spectrum Where is the battery and the shelter? Other help appreciated. Christopher Hallam 45 Duke Street Cotmanhay Ilkeston, Derbyshire

Valhalla on Spectrum Cannot find third quest object – Skornir. Harold Silander 13 Craiglockhart Grove Edinburgh. PS Can help on Tir Na Nog, Dun Darach and Hobbit.

Mindshadow on C64 Can't get off the island. G Silver 383 Barstable Avenue Barking Essex

Snowball on BBC/Spectrum What is the code for the crew members of So? What floor is it on, and what next? J Haslam, 8 Sittingbourne Avenue Bush Hill Park Enfield Middx.

Twin Kingdom Valley on Spectrum At the end what do I have to take where to end the adventure? John W Rundle 28 Western Road Aldershot Hants

Bored of the Rings on Spectrum. Where are the magic scissors in part three? R Hill 14 Alexandra Road Margate Kent

Emerald Isle on Amstrad. How do you get past pile of plectrums? What do you do at the statue and the monument? P Walker 41 East Leys Court Moulton, Northants

Sub Sunk on Amstrad. Where do I find the acid? How do I get the pill out of the bottle? P Walker 41 East Leys Court Moulton Northants

Sherlock on Spectrum. How do I get to Old Mill Road? Colin Barker 98 Oaktree Grove Gipton Leeds 9

Forest of Kara on Amstrad. What do I do with the tinderbox? How do I get out of the dungeon, and what is the frog for? Roger Wilson 7 Gawthorpe 38 Dukes Brow Blackburn Lancs

Final Mission on Spectrum Where is the key to the second iron door? A D Anshie 17 Muirhouse Road, Motherwell Lanarkshire Scotland

Questprobe II Spiderman on Spectrum. I want to know how to stop Electro and Mysterio. Can help on Hulk. Adrian Carter 28 Little Norton Lane Sheffield 8

Planet of Death on Spectrum. How do I get past the force field and how do I dance to the music played? D Roper 13 Coalbrook Avenue Woodhouse Mill Sheffield

Charts

Amstrad

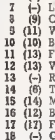
1	(3)	They Sold A Million	(Hit Squad)	£9.95
2	(1)	Yie Ar Kung Fu	(Imagine)	£7.95
3	(3)	Grand Prix 3D	(Software Invasion)	£9.95
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Atari

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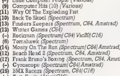


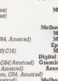


Top Twenty

1	(1)	Commando *(Spectrum/C64)*	Elite
2	(–)	Yie Ar Kung Fu *(Spectrum/Amstrad/BBC/MSX)*	Imagine
3	(5)	They Sold A Million *(Spectrum/C64/Amstrad)*	Hit Squad
4	(2)	Elite *(Spectrum/C64/BBC)*	Firebird/Acornsoft
5	(4)	Rambo *(Spectrum/C64)*	Ocean
6	(7)	Formula One Simulator *(Various)*	Mastertronic
7	(–)	Little Computer People *(Various)*	Activision
8	(9)	Computer Hits (10) *(Various)*	Beau Jolly
9	(11)	Way Of The Exploding Fist	Melbourne House
10	(–)	Back To Skool *(Spectrum)*	Microsphere
11	(13)	Finders Keepers *(Spectrum, C64, Amstrad)*	Mastertronic
12	(13)	Winter Games *(C64)*	Epyx/US Gold
13	(–)	Rockman *(Spectrum/C64/Vic20/C16)*	Mastertronic
14	(–)	Tomahawk *(Spectrum)*	Digital Integration
15	(14)	Monty On The Run *(Spectrum/C64/Amstrad)*	Gremlin Graphics
16	(12)	Beach Head 2 *(Spectrum, C64, Amstrad)*	Access/US Gold
17	(17)	Frank Bruno's Boxing *(Spectrum, C64, Amstrad)*	Elite
18	(–)	Gyroscope *(Spectrum/C64/Amstrad)*	Melbourne Bouse
19	(15)	BMX Racers *(Spectrum, C64/C16)*	Mastertronic
20	(–)	Tutti Frutti *(Atari/C16)*	Mastertronic

Figures compiled by Gallup/Microscope





BBC

1	(1)	Strike Force Harrier	(Mirrorsoft)	£9.95
2	(10)	Computer Hits (10)	(Beau Jolly)	£9.95
3	(3)	Match Day	(Ocean)	£9.95
4	(2)	Repton 2	(Superior Software)	£9.95
5	(9)	Elite	(Acornsoft)	£12.95
6	(8)	Beach Head	(Access/US Gold)	£9.95
7	(5)	Combat Lynx	(Durell)	£8.95
8	(–)	Nightshade	(Ultimate)	£9.95
9	(–)	Blockbusters	(Macsen)	£7.95
10	(–)	Monopoly	(Leisure Genius)	£12.95



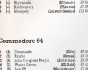
Readers' Chart No 54

1	(6)	Elite *(Spectrum/C64/BBC/Electron)*	Firebird/Acornsoft
2	(1)	Way of the Exploding Fist *(Spectrum/C64/Amstrad)*	Melbourne House
3	(4)	Monty on the Run *(Spectrum/C64)*	Gremlin Graphics
4	(2)	Fairlight *(Spectrum)*	The Edge
5	(–)	Winter Games *(C64)*	Epyx/US Gold
6	(–)	They Sold a Million *(C64)*	Hit Squad
7	(5)	Red Moon *(Spectrum/C64/Amstrad/BBC/Electron)*	Level 9
8	(–)	Commando *(Spectrum/C64)*	Elite
9	(10)	Flight Simulator II *(C64)*	Sub-Logic
10 =	(10)	Finders Keepers *(Spectrum/C64/Amstrad)*	Mastertronic
=	(10)	Bored of the Rings *(Spectrum/Amstrad)*	Delta 4/Silversoft

Winning Phrase No 54. "Snow threat destroys pig flight hope" from Graham Smith of Leeds who receives £25. Honourable mention to "Hypersports – self explanatory" from R Robertson of Massend Lanarkshire

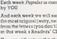
Commodore 64

1	(4)	Commando	(Elite)	£9.95
2	(2)	Rambo	(Ocean)	£8.95
3	(6)	Little Computer People	(Activision)	£9.99
4	(1)	Winter Games	(US Gold)	£9.95
5	(5)	Last V8	(Mastertronic)	£1.99
6	(10)	They Sold A Million	(Hit Squad)	£9.95
7	(3)	Fight Night	(US Gold)	£9.95
8	(–)	Way Of The Exploding Fist	(Melbourne House)	£9.95
9	(7)	Summer Games 2	(Epyx/US Gold)	£9.95
10	(–)	Kik Start	(Mastertronic)	£9.95









Now voting on week 56 – £25 to win

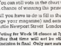
Each week *Popular* is compiling its own special software top ten chart – compiled by YOU!

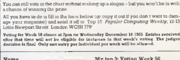
And each week we will send £25 to the person who sends in with their chart votes the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 56 closes at 2pm on Wednesday December 18 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.





Name .... **My top 3: Voting Week 56**

Address .... 1................................

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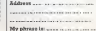
My phrase is: ....

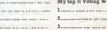
Spectrum

1	(1)	Commando	(Elite)	£7.95
2	(–)	Yie Ar Kung Fu	(Imagine)	£7.95
3	(4)	Back To Skool	(Microsphere)	£6.95
4	(3)	Tomahawk	(Digital Integration)	£9.95
5	(2)	Elite	(Firebird)	£14.95
6	(8)	Daley Thompson's Super Test	(Ocean)	£7.95
7	(10)	They Sold A Million	(Hit Squad)	£9.95
8	(6)	International Karate	(System 3)	£6.50
9	(–)	Monty On The Run	(Gremlin Graphics)	£7.95
10	(5)	Saboteur	(Durell)	£8.95

All figures compiled by Gallup/Microscope









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New Releases

UNLUCKY 13

Friday the 13th the computer game is, as you can hardly fail to have noticed, the latest release from Domark Domark seem to be trying to claim that the game is, simultaneously gory and fun for all the family

It's fair to say that the game is no bloodier than many other games and won't offend most people It's also fair to suggest that Domark would quite like to imply that it's very gory to the kids who will buy it (goryness is a very attractive concept to little kids), but are keen to suggest that it s not at all nasty in any way to the paranoid owners of the retail chains who are worried what Mr and Mrs Ordinary might think

Anyway, away with all this silliness, *Friday the 13th* is not really a very good game and if it were not called *Friday the 13th* but instead titled *Crazy Christoph* it would sell around three copies It features moderately wacky rather small and undistinguished graphics, depicting the various characters who get killed for no particular reason, and sort of 3D graphics showing the area around the Crystal Lake holiday camp complete with forests and old churchyards

The idea is that you have to find the various members of the teenage party and lead them to safety This involves finding a cross which represents safety and placing it in a location where the group can gather Once touched, they make their jerky way to the safe place However, in the time it takes to collect everybody, those who have already made it to the sanctuary may get bored and wander off There is also the problem of discovering which character is Jason a fact that doesn't become obvious until he (or she) actually tops someone (complete with blood curdling digitised scream) It is not a good idea to tell Jason where the sanctuary is

You also get to attack Jason yourself, or at least defend yourself by picking up one of ten weapons which are lying around This can lead to amazing low res fights in which it's almost impossible to see what's going on

I found it all fairly dull, although the chasing about might entertain some people If it wasn t called *Friday the 13th* it would be a budget game and if its gory bad taste and jokes you're after, try Creative Computing's *Mad Doctor* instead.

Program *Friday the 13th*
Price *£7 95*
Micro *Commodore 64*
Supplier *Domark*
204 Worple Road
London SW20 8PN

ENTERTAINING

Bruce Everiss industry, er figure has a new software house called Everiss Software and has just released a zap zap game for the BBC B called *Wet Zone*

Now I had grave doubts about a game called *Wet Zone*, but in fact it proves to be, more or less, *Arcadia*, in its time about the best plain pow-pow-pow game on the Spectrum No prizes for innovation or inventiveness then. On the other hand, it's still a fairly entertaining game and there are some pretty nifty, largish sprites to represent the bizarre hoards of aliens

You have a mega spaceship and armed only with twin photon laser blasters must clear the skies of an assortment of umbrellas, little squiggly objects and other household items that form the aforementioned hoards. It's quite fun actually and is colourful and fast, it's also (relatively) cheap

Program *Wet Zone*
Price *£4 95*
Micro *BBC B*
Supplier *Everiss Software*
37b Linkway
Denham Green
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The Rogue Program

New Releases

Pick of the week

ACCEPTABLE

QL Adventure is a home grown low budget release for the Spectrum It combines two almost totally incompatible concepts, 1) a Spectrum adventure from a small independent company, 2) not being written with the Quill. This means that it does, at least, not look like every other adventure but is written mostly in Basic instead

To be fair the game moves along quite quickly the graphics are drawn well and within the limits of standard Basic shapes are quite effective It also has a good deal of wit and irreverence which can redeem almost anything.

On balance I'd say I found it a bit slow but the wacky plot, strange locations and in-jokes make this a reasonable, acceptable effort in the style of Fergus Mcneill and the *Bored of the Rings* crowd

Program *The QL Adventure*
Price *£3 50*
Micro *Spectrum*
Supplier *Optimus Software "Cheddars" Little Horkesley Colchester Essex CD6 4DJ*

IT WORKS

What the CX5 needed, everyone said, was a real time sequencer, so that it could be used as a live performance instrument and as a controller of other instruments The Music Composer cartridge, though powerful, was hardly flexible enough to implement instant changes and anyway required a fairly sound knowledge of notation

The first *Real Time Sequence/Recorder* is now available and comes not form Yamaha but Digital Music Systems – that may explain the fact that it costs £86 For those of us already enamoured of the machine it's obviously a welcome release which represents quite a feat of technical information wheedling out of the obsessively secret Yamaha.

The good news about the package is that it does everything it's supposed to and is relatively easy to use (thankfully, since the manual is minimalist to say the least)

The bad news is that's all that can be said of it the actual design and presentation of the package is pretty poor

You can think of the program as analagous to the Composing program except that you don't notate the music you wish to enter, you simply play it on the Yamaha keyboard. The actual sounds to be used to play each phrase may be the Yamaha presets, sounds constructed using the FM cartridge, or one of 100 presets contained within the Real Time Sequencer (mostly these are not terrifically exciting it must be said – perhaps 10 are really useful)

PEERLESS ADVENTURE

OK, pixie hats on, mighty axes of Tharg wielded, ancient quest mode set to 'accept' and obscure bugs discovered. *Lord of the Rings* (part one) is here! In a package almost as mighty as the very quest itself you get two tapes, an instruction manual and the first volume of Mr T's very, very long book

Frivolous good news is that absolutely nobody sits down and sings about anything (at least not in the first section that I've been able to play through) Reel good news is that *Lord of the Rings* is everything every Hobbit addict hoped for

Though there are graphics about as frequently as in *The Hobbit*, they are quite plain and are clearly not intended to be of equal importance to the text, but merely icing on the cake. The cake, on the other hand is one of the most advanced, original and involving text adventures you ll ever play.

Lord of the Rings Part 1 is divided into two tapes, one of the sides containing a special beginners' version of the game which reduces the problems and provides hints where they are wanted The main adventure would seem to be as hard if not harder than *The Hobbit*.

You can say things in a variety of ways and mostly it will understand you, phrases can be linked by and giving you plenty of scope for timesaving multi instruction An exciting new feature found in *Lord of the Rings* is a multiplayer option where up to four people can choose to be different members of the company of the ring (I d like to meet someone who chooses to be that loyal rustic and all-round sycophant Sam though) The situation is presented from the viewpoint of each of the characters, giving extra insight into the environment.

A lone player may also choose to take the part of several different characters — it can be useful in keeping the ring safe if someone is



This Week

Program	Type	Micro	Price	Supplier
Bridge Player	S	Amstrad	£14 95D	CP Software
Bridge Player 3	S	Amstrad	£12 95	CP Software
Endurance	S	Amstrad	£7.95	CRL
Big League Soccer	St	Amstrad	£6 95	Leisuretime
American Road Race	Arc	Atari	£9 95	English Soft
Mediator	Arc	Atari	£5.95C	English Soft
Mediator	Arc	Atari	£12.95D	English Soft
Ram Disc/Print School	Ut	Atari ST	£24 95	Talent
Crack It!	Ed	BBC	£5.95	Mirrorsoft
Giddy Game Show	Ed	BBC	£9 95	Mirrorsoft
Commando	Arc	Commodore 64	£9 95	Elite
High Noon	Arc	Commodore 64	£6.95	Ultimate
New Games 2	Arc	Commodore 64	£8 95	Virgin Games
Transformers	Arc	Commodore 64	£8 95	Ocean
Yabba Dabba Doo!	Arc	Commodore 64	£7 95	Quicksilva
Zoids	Arc	Commodore 64	£8 95	Martech
Alien 8	Arc	MSX	£9 95	Ultimate
Knight Lore	Arc	MSX	£9 95	Ultimate
Nightshade	Arc	MSX	£9 95	Ultimate
QL Flight	St	QL	£19.95	Microdeal
Cosmos	Ut	QL	£13 95	Talent
Desperado	Ad	Spectrum	£3 95	Cent Solutions
Lord of the Rings	Adv	Spectrum	£15 95	Melbourne House
Antteroo	Arc	Spectrum	£3 99	Cent Solutions
Cyberrun	Arc	Spectrum	£9 95	Ultimate
Dungeon Dare	Arc	Spectrum	£3 95	Central Solns
New Games 2	Arc	Spectrum	£5 95	Virgin Games

killed or captured

There are reams and reams of descriptive text in every location, it's nicely presented with a redesigned character set, and it also echoes the book closely On the question of faithfulness of the game to the book, thre are obviously some variations There would be little point to the game if all you had to do was re-enact the book

Lord of the Rings fans will find all the characters they know and love/hate, including the dubious Tom Bombadil whose interest in mushrooms always seemed to me to smack of chemical experimentation of a most illegal sort

Adventure addicts will find a sophisticated text adventure without peer in terms of scope, imagination (even if its someone else's), and involvement. Here at last is the definitive Christmas present to buy anyone with a Spectrum this year, even if they usually use it for stock-taking

It should be out on a lot of other machines as well

Program *Lord of the Rings*
Price *£15.95*
Micro *Spectrum*
Supplier *Melbourne House Castle Yard House Castle Yard Richmond Surrey TW10 6TF*

You work with 'phrases' – this represents a section of music, which may be mono or polyphonic, which is assigned to a part in the music The part represents one of the up to eight musical voices you may play simultaneously Creating music works like this pick a phrase number and assign it a number of bars, then specify how many notes polyphonic it needs to be

Select a time signature, play your phrase along with a metronome beat that counts out the beats in the bar The complete phrase is then inserted in one or more parts using a simple up and down cursor mechanism and a long line of phrase numbers So for example, Part One might begin 001 004 where 001 is a twelve bar theme and 004 is a twelve bar theme

Any phrase may be inserted anywhere as may be rests of different lengths You may also use Midi channels in the parts, sending the note information out to a separate musical instrument.

The faults with the system are these you have to work out very closely how the music will work in advance and remembering what phrase number is what and having to specify the number of bars in advance are both irksome The presentation is really 'bare bones' more could have been done with the MSX graphics facilities than this essentially plain, graphic design lacking, presentation

Good points: a Quantaisation feature that corrects your mistiming, playing to the nearest specified note value eg, one eighth of a beat. It works and despite the drawbacks is easy to use provided you plan the music carefully in advance With nothing else on the horizon, to my knowledge, I'd recommend the package, albeit with plenty of reservations

Program *Real Time Sequence/Recorder*
Price *£86*
Micro *Yamaha CX5*
Supplier *Digital Music Systems 182 Wilmslow Road Heald Green Cheshire SK8 3BG*

SOME VIRTUES

God knows there are any number of motor racing games around at the moment for the Commodore 64, yet there are still some virtues to the latest one, *Scalextrix* from Leisure Genius

It's based obviously, on the famous car racing game which filled and probably still fills the bedroom floors of teenagers everywhere

Scalextrix the computer game is basically *Pole Position II* with a nicely designed option to construct your own tracks using track pieces rather like those which form the usual Scalextrix sets (alas no bridges though)

The track design section used a simple icon system to pick out a track piece from a 'box' and place it in position, thus building a complete layout

The track includes such nasty sections as Chicanes so it's possible to create utterly fiendish circuits.

Actually playing the game presents two views – from behind each of the two competing cars, shown on the top and bottom of the screen The screens move independently and the other car is shown in appropriate perspective according to how far away it is There is a reasonable amount of scenic detail, though nothing astounding, but the sense of speed is well done

In fact this is really a car racing game for those who don't usually like them it isn't hard to play and is difficult to crash You don't need to worry all that much about lines of approach and correct cornering – there are no gears to worry about either *Revs* fans will find it simplistic but for those who want a simple car race game, this has plenty of speed and excitement and is well presented.

Program *Scalextrix*
Price *£9 95*
Micro *Commodore 64*
Supplier *Leisure Genius 3 Montagu Row London W1H 1AB*



Transformers	Arc	Spectrum	£7 95	Ocean
Winter Sports	Arc	Spectrum	£9 95	Electric Dreams
Zoids	Arc	Spectrum	£7 95	Martech
Crack It!	Ed	Spectrum	£7 95	Mirrorsoft
Giddy Game Show	Ed	Spectrum	£9 95	Mirrorsoft
Just Imagine	Ed	Spectrum	£3 99	Central Solutio
Their Finest Hour	S	Spectrum	£9 95	Century

Key Ad – adventure **S** – strategy-simulation
Arc – arcade **Ut** – Utility **Ed** – education

Activision, 15 Harley House Marylebone Road London NW1 01-486 7588 **CP Software** 10 Alexandra Road Harrogate N Yorkshire HG1 5JS **CRL,** CRL House, 9 Kings Yard Carpenter s Road London E15 2HD 01-533 2918 **Central Solution,** 500 Chesham House 150 Regent Street London W1R 5FA 01-624 1389 **Electric Dreams,** 31 Carlton Crescent Southampton Hampshire, SO1 2EW **Elite,** 55 Bradford Street Walsall WS1 3QD 0922 611215 **English Soft,** 1 North Parade Parsonage Gardens Manchester M60 1BX 061-835 1358 **Martech,** Martech House Bay Terrace Pevensey Bay East Sussex BN24 6EE 0323 768456 **Melbourne House,** 39 Milton Trading Estate Abingdon Oxon OX14 4TD 0235 835001 **Microdeal** 41 Truro Road St Austell Cornwall PL25 5JE 0726 73456 **Mirrorsoft** Mirror Group Holborn Circus London EC1P 1DQ 01 353 0246 **Ocean,** 6 Central Street, Manchester M2 5NS 061-832 6633 **Quicksilva,** Palmerston Park House 13 Palmerston Road, Southampton Hampshire SO1 1L **Talent,** Curran Building 101 St James Road Glasgow G4 0NS 041-552 2128 **Ultimate,** Ultimate Play the Game Ashby de la Zouch leicester, LE6 5JV 0530 411485



A dead language

There are a number of analogies which can be drawn between the ancient and dead language of Latin and more recently developed computer languages

Some of the parallels are complimentary, others are darkly portentous

Latin is a precise language with strict rules of grammar To render a sentence in good Latin is to know the feeling of absolute success The final product is either correct and its own reward or it is wrong and its own chastener The satisfaction obtained from getting something perfect in every detail is rarely found in the arts where a search for perfection may actually inhibit expression and where value judgements are imposed in measuring success Computer languages, with their demanding syntax and finite vocabulary, are seen as modern versions of Latin and intrinsically valuable for the discipline they impose upon the mind This positive analogy is often quote in support of computer studies in school The analogy I prefer is the one which questions the present supremacy of BBC Basic in schools

In the Middle Ages, when the European educated class was so small that no one country's literati could survive in isolation an international language was essential for the dissemination of ideas Latin was eminently suitable as it was already the language of the Church, and thus known to all who were educated by the Church It was a classical language much revered for its antiquity and origins as the language of Imperial Rome and as a dead language it was free of political innuendo That is not to say that it did not develop Many 'new' Latin words were coined in medieval Europe, in the main they were words from newer, more dynamic, languages amended to conform with Latin syntax However, progress in science and the humanities eventually stretched the essentially inflexible of Latin to breaking point At the same time the spread of literacy and knowledge, freed from the monopoly of the Church, encouraged people to write about the weightier matters of the day in their own more accommodating, languages Although never replaced in status or in universality by a single language, Latin lingered on as an increasingly irrelevant school subject and has now just about disappeared from the mainstream of eduction.

Today, the computer literate of Europe far outnumber the intelligentsia of the Middle Ages and represent a greater proportion of the total population. Basic the language of the school computer room, is supreme but the increasing demands for complex data constructs, fully structured programs and rapid execution of computing tasks cannot forever be met by merely tinkering with the language Basic is inherently slow and has very few worthwhile applications Mainframe manufacturers have their own languages and the microcomputer software houses work mainly in C or assembler code

And so the Latin trap is this We teach our children a computer language and call them compute literate The dialect BBC Basic is old and unchanged for many years but it is revered due to its antiquity and its origins as the language of what was once a very advanced desktop computer However, the up-start languages such as Locomotive Basic far behind in terms of power and in terms of sales to the home user, but not so far in terms of status Beyond the Basic dialects the high-powered compiled languages, led by C, are the future for small business micros

Like Latin, BBC Basic is likely to endure only as an increasingly irrelevant school language

Mike Lloyd

Puzzle No 187

Here is an account of my visit to the shops last Saturday

My first call was at the grocers where I spent exactly one third of the money I had on me On leaving the grocers I bumped into Tom (to whom I owed a pound) As I was not certain how much money I would need for the rest of my shopping I gave Tom 50 pence and promised him the rest later

I then visited the butchers where I spent half of the money I had left After this I went straight to the newsagent where I spent half of what I had spent at the grocers before making my final call at the chemists where I spent one third of what I had paid the butcher

Just outside the chemist's shop I saw Tom again, and as I had just 50 pence left I handed it over to him to clear my debt.

Can you say how much I started out with?

Solution to Puzzle 182

A = 79 B = 13 C = 43

```
10 FOR B=10 TO 31
20 S=B*B
30 B$=STR$(B)
40 S$=STR$(S)
50 [illegible] THEN GOTO 200
60 FOR A=32 TO 99
70 T=A*A
80 T$=STR$(T)
90 [illegible]
100 C$=STR$(C)
110 [illegible]
    [illegible] THEN GOTO 190
120 U=A+B
130 V=A*B
140 U$=STR$(U)
150 V$=STR$(V)
160 IF [illegible] THEN GOTO 190
170 IF [illegible] THEN GOTO 190
180 PRINT A,B
190 NEXT A
200 NEXT B
```

Using the program we can test for the values of A and B We know that B is in the range 10 to 31 as it has a three-digit square, and A is in the range 32 to 99 as it has a four-digit square By checking the relevant digits where the various numbers interlock the values of A and B can be easily identified The remaining value of C is then readily calculated by inspection as only its 'tens' digit is still unknown.

Winner of Puzzle No 182

Despite a misprint in the clues, Dr D F Kinane of Dundee can be congratulated for finding the correct solution and will be receiving £10

Rules

The closing date for Puzzle 187 is January 8

The Hackers

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